13 YEARS

www.QLToday.com

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QL Today

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QL Today is published five times a year, our volume begins on beginning of June. Please contact the German or English office for current subscription rates or visit our homepage www.QLTODAY.com.

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If you need more information about the UNZIP program which is used by our BOOT program to unpack the files, we suggest that you visit Jonathan Hudsons web site where you find more information about lots of interesting QDOS software and INFOZIP at www.bigfoot.com/~jrhudson/

Someone once told me I was one of the politest people he had ever met. He had noticed I always opened doors for him and let him go first.

I soon disillusioned him. "It's nothing to do with politeness. I have been a probation officer. Maybe you have a knife in your hand. If I open the door for you and let you go first, I can watch you all the time."

People can have different perceptions of the same event and this was true of the editorial I wrote two issues ago. The final three paragraphs of the editorial were meant to be challenging but positive about Quanta. They were written with sympathy for the officers who do not get the support from the members they deserve.

Quanta's chairman interpreted my remarks as being highly critical and wrote a personal attack on me in the Quanta magazine. He unwisely posted his comments on Quanta's website to a wider audience out of context and with no structural mechanism for a right of reply. For the first time in its history Quanta had to remove content from its website for legal reasons.

In the last issue Roy Wood argued powerfully for the need for realism in the QL community:

"We should not have our heads in the sand and deny all negative aspects of the way the QL scene has deteriorated. We should be looking at negative comments as a way of improving the areas we do worst in."

It is not being anti-Quanta to accuse its members of neglect, albeit benign, when for three years its committee has been seriously undermanned. The officers have had to double and triple up their duties to keep Quanta ticking over. Nor is it anti-Quanta to report the organisation may have to close next year because no one wants to be its chairman. Both are a grim reality.

Readers are entitled to be critical of QL Today's coverage of Quanta and I would be happy to publish your critical comments in the magazine. In return I would ask my critics to take a hard look at yourselves. How far are you prepared to get your hands dirty to save Quanta from its present plight? Just paying your subscription is no longer enough. Quanta's need is not money but manpower.

Last autumn we ran a lead story "Quanta closure imminent?" We thought long and hard before publishing this, even though a similar story had already appeared in the Quanta Magazine. These stories shocked some people and shortly afterwards informal discussions were under way that eventually led to two new Quanta committee members.

Realism brought a reward and at QL Today we are happy to have played our part in achieving this.

John Mason hits out

Quanta's Chairman, John Mason, has made a surprise attack on QL Today, describing the editor as being a mischievous person completely oblivious to how he is diminishing himself through his reporting on Quanta matters.

In an editorial in the April/May 2008 Quanta Magazine John Mason writes:

"I notice in his Editorial in QL Today Volume 12 Issue 3, March-May 2008, that Geoff Wicks, once more, somewhat mischievously seeks to diminish Quanta completely oblivious that in so doing he diminishes himself and that when he served on Quanta Committee he too found that there was no magic wand which would cure all the ills which he or anybody else might perceive.

Remember - The Committee are all volunteers not paid employees!

Over the past four years they have done much to bring the Association back from the brink.

The magazine has been revitalised, and members have welcomed the option of receiving their copy electronically. This has been partly due to the willingness of the few to provide a good flow of articles and in particular to all the completely unseen work that John Gilpin has put in to change it from a less than mediocre production to a first class presentation.

Communications too have been sorted out. A new ISP found. The SPAM question addressed. After much searching a new Web Master, Dan Abbott, found and that which was a disaster area has been put once more on a sound footing."

The section of the QL Today editorial to which John Mason objects was:

"One bright spot is that QL Today understands - strictly off the record - that by the time you are reading this Quanta will have some good news for its members, although these are still falling in number

Quanta now has under 200 members, but its structure, activities and thinking remain largely rooted in the time when it had over 2,000. Can Quanta adapt to changing circumstances? There are about 40 reasonably active people within Quanta and given a radical reshaping around the needs of these members it could remain a powerful force within the QL community.

For some years Quanta has been the victim of its members' benign neglect, but the immediate danger of its closure in 2009 has been averted. Next year Quanta plans a major celebration of the QL's centenary (sic). Let us set our sights on this celebration and use this to get through the dark days of 2008."

QL Today's editor, Geoff Wicks, comments:

"This came as a complete surprise, because John Mason had two whole days at the Manchester show to discuss the editorial with me, but made no attempt to do so. I saw him with another officer discussing the editorial and even took a photo of them, but when I asked what the interest was I was told they were just looking at the way we lay out the magazine.

The weakness in John Mason's piece is that he writes in emotive and general terms, but fails to tell us explicitly what upset him in my editorial. I would like to know the specific points of his objection. John Mason also has to face up to the reality that on his watch membership of Quanta has fallen by over 36%.

John Mason highlights two areas where Quanta has made progress, the magazine and the website. He fails to mention that both have had extensive coverage in QL Today including favourable lead news stories. Nowhere has there been more praise for the progress made with the Quanta Magazine than in the editorial columns of QL Today. I can even claim to have publicly praised John Gilpin for his work on the magazine more than John Mason has done himself. John Mason has never once expressed the slightest gratitude for our support and encouragement and, by taking such a partisan attitude, he has further weakened his case.

I take issue with John Mason that the disaster area of the Quanta website has now been put on a sound footing. Sadly the website has not lived up to its early promise because for much of its first year its content has been hopelessly out of date. QL Today published more up to date and more accurate information on Quanta's AGM than ever appeared on its own website. I do not blame the webmaster for this because I believe Quanta has failed to take the basic
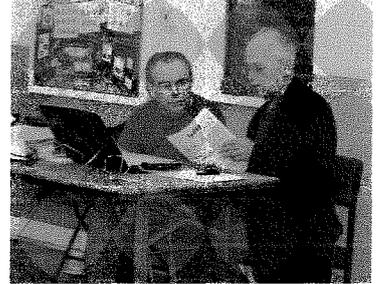
decisions needed for a successful website. At Manchester I asked John Mason a question I first asked him four years ago, namely who is responsible for the editorial content of the Quanta website. He could not answer the question four years ago and still cannot answer it today. Logically this indicates that the editorial content of the website is decided ad hoc. Quanta has had a website for about 8 years, but has never set up the machinery for the structural updating of the website or of ensuring that the content does not fall foul of the law. Would they try to run the Quanta Magazine without an editor?

No one has ever disputed the factual accuracy of anything I have written about Quanta in QL Today. To my knowledge the only person to write a complaint did so anonymously via an insalubrious website. Hardly a good advertisement for Quanta. I cannot stress enough that if the content of QL Today offends, then the correct place to comment is in our letter box column.

I am now making Quanta an offer. They can have up to 2,000 words, unedited except for normal proofreading corrections, to put their case in QL Today. In return I would expect a similar facility in the Quanta Magazine, but even if Quanta is not prepared to reciprocate I shall be more than happy to give them their 2,000 words.

The ball is now in Quanta's half of the court."

Bumper Summer Software

During the summer our software writers have not been idle. Software updates have come from Bob Spelten, Malcolm Lear, Jochen Merz, Jimmy Montesinos, Dilwyn Jones, Daniele Terdina and Andrea Carpi.

QCP
Bob Spelten writes:
"I have upgraded another one of Wolfgang Uhlig's freeware programs.
This new QCP complements the new QCoCo (both versions 1.60) in helping users to run recent programs in high colour and assist programmers in creating colourful applications."

Details of the upgrade are:
"System values can now be stuffed as decimals as well. Also Native values have been added. These work on QPC2 & QXL and should work on Qx0 but I have not tested this. They are disabled on Aurora.

Wolfgang Uhlig had already started on a new version with a nice scroll-down 3D border menu, which I finished. It's running even smoother now. The chosen border will be shown in the colour field and its values can be sent to the stuffer buffer.
Numbers can be edited or new values given and QCP will show the new colour. False values are rejected but QL, PAL, Grey, 3D border or Stipple values are all valid. Theme reference numbers will fetch the colour for that theme from palette zero.
All menus have been updated in EasyPtr4 and all loose items now have a selection key. The colour field has a black & white block at the top for contrast comparison.
Not just the default Favourites but other Favourite RGB files can be loaded as well. They can also be saved under new names when leaving QCP.
The default extension "_mfc" which I introduced with QCoCo 1.60 can now also be set for QCP. Two more defaults can be set with configuration. Some Menu_rext calls have a timeout set, which will work with the new Menu extensions version 7.69 (out now).
More details can be found in the Readme_txt file that is also the manual on how to use this freeware colour picking tool."
QCP can be downloaded from Bob Spelten's website:
http://members.upc.nl/b.spelten/ql/
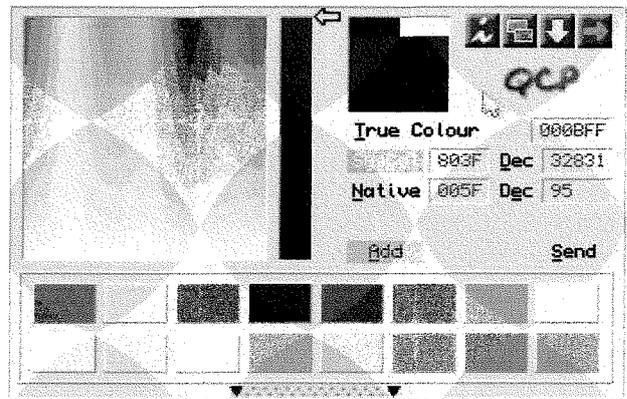
Lear PCB CAD
Malcolm Lear regularly appears on our news pages with frequent updates of his PCB CAD Software. **Dilwyn Jones** informs us:
"Version 6.46 is a major update, which now supports 6 copper layers plus top/bottom silk screens, top/bottom solder resist, top/bottom mechanical, and top/bottom solder paste masks. It also produces placement files for

automatic assembly. All libraries have been
updated to reflect changes.
This version can be downloaded from:
http://www.dilwyn.uk6.net/graphics/index.html
Please note that v646 is just over 1.1MB
download, quite large by QL standards."
Given the frequency with which this suite has been updated QL Today will be pleased to receive an up to date review from a user of the software.

MENU Extension

In the last issue Jochen Merz reported that he was working on some improvements to Menus. These are:

LIST - Autosize correct if selection keys given

LIST - Long titles fit even in small menus

LIST - Move item added to List-Select

RPER - Timeout for RPTR loop in upper word of
    colourway parameter

ITSL - Timeout added as for RPER; return value if
    time out is -3

RSTR - But 6 set: negative sign allowed for
    numbers

ITSL - Window move implemented

Jochen now reports that the new version is available on the J-M-S support page for registered uses.

LAST MINUTE NEWS: a new version of QMENU will be available in September! Please see the J-M-S ad on page 9 for up-to-date information.

New QL2K Version

Jimmy Montesinos has announced that he has now released QL2K Build Alpha 100. The main changes are sound emulation, and - a first for a QL Emulator - flash support in mode 8.

Details of the news version are:

Latest Build: 0.1 Build 100 (Alpha).

Changes:

- Sound emulation. QL Sound is now emulated. Volume settings override Windows general setting (MCI sound) but restore original values when you quit QL2K.
- FLASH support. Support blinking in 8 colors mode.
- 800x480 screen enhanced support in GDI Mode. (relative to EEE PC and others handheld computers)
- Some improvements and bug corrections have been made too.

The program can be downloaded from:
http://www.jadiam.org/QL/Download.php

In an email on the QL-users email group Norman Dunbar had an interesting snippet of news:
"I'm working with Jimmy et al to try and build a native version of QL2K to run under Linux without Wine. Progress being very slow as I'm still at the stage of trying to figure out what the code does, the driver ROMs and so on. Maybe one day though!"

QL On A Stick

Dilwyn Jones has updated his QL on a Stick:
"The QL On A Stick CD has now been updated to include version 0.1 release 100 of QL2K from Jimmy Montesinos. The main benefits of this latest version include support for QL sound via the BEEP command and support for FLASH in MODE 8. Users of older versions can update simply by updating the file QL2K.EXE with the update file downloaded from Jimmy's website"
The website address is as in the previous news item.

3 QL emulators set up ready for use - just copy the content of this CD to a
USB pen drive of at least 128MB capacity and you are ready to try out
QLay2, QemuLator (shareware version) and a trial version of QPC2.

Please read the instructions in the README.TXT file (e.g. using Notepad
in Windows) or README.HTML (using a browser) before use

Sample programs and a copy of the QL manual supplied, along with
Minerva, JS and JM ROM images!

- PROBABLY THE MOST PORTABLE QL YET! -

Hot from Italy

The hot news from the Italian show is that *Daniele Terdina* will shortly be releasing a new version of QemuLator compatible with Vista. He has also developed QemuFast which is four times faster than QemuLator, but not compatible with all software.

You can read all about these in the full report of the Italian show elsewhere in this issue.

At the show *Andrea Carpi* had the latest version of his Euroconverter program to include new EU members Malta and Cyprus.

Broken Promise

Quanta has broken a written undertaking to Tony Firshman to correct inaccurate information published about him in the Quanta Magazine.

The February/March Quanta Magazine reported that *"Tony Firshman will no longer be involved in QL activity"*. On 25th March Tony emailed Quanta to say he had just stopped advertising and reduced his QL activities because of time pressures. He asked Quanta to clarify this in the next edition of the magazine.

Quanta failed to reply to this email and on 7th April Tony emailed Quanta a second time. On this occasion he received a lengthy reply with an explanation of how the misunderstanding had occurred. Acting newsletter editor, John Gilpin, wrote:

"I, as Co-Editor of Quanta Magazine apologise to Tony for any misunderstanding in this matter and will comment on the same in the next issue of the Magazine."

Quanta has reneged on this undertaking. From conversations he had with all Quanta officers at the Manchester show, the editor of QL Today believes that John Gilpin was sincere in his promise, but that he was later overruled by the other two officers.

QL Today, which published an accurate story, but with a misleading headline, apologised to Tony Firshman in both the magazine and on the QL-users email group.

Website Update

Norman Dunbar has sent us an update on his website:

After last issue's mention of the resurrection of QDOS Internals at http://Qdosmsq.dunbar-it.co.uk, I thought I'd add a few words.

Geoff mentioned that there are 4 areas of interest on the Wiki - Linux, Playground, Wiki and Qdosmsq - so I better explain.

Linux is where I ramble on about stuff I'm doing in Linux that is of note to QDOS/SMSQ users, maybe! Currently I have details of my progress on building a Linux filesystem that can read (and hopefully write) Qdos formatted floppy discs. Also, how to compile a Linux Kernel when the one in use is too old and out of date it won't let you compile your filesystem code against it!

Qdosmsq is where all my old QDOS Internals stuff will eventually end up. This will take place as and when I have time. I need to convert from the old HTML site layout to the new Wiki format. Those are the two main areas of interest for us QL types! The other two areas are present in all

versions of the Wiki and I have no ability to remove them - or I haven't found one yet!

Wiki is an area that gives details of the Wiki software itself and how to use it etc.

Playground is where anyone who has write access can test out what they want to do before adding it to the main Qdosmsq or Linux areas. It is indeed a playground. When I open the site up for write access, anyone who wants to update a page should take time to play around in the playground and learn the syntax of the Wiki files before delving into the main pages.

I have changed the layout since the screen shot in the last issue. I wasn't too happy with the colours etc as some text appeared unreadable against the blue background. The template I was using at the time allowed a choice of red or blue - and both options had similar problems.

To this end I have begun to use a new template for the Wiki and this one looks much better in my opinion - but time will tell. One thing I'm not really happy with is the need to have every page indexed down the left as clicking on a link there doesn't always take you to the correct place. I might have to create a special Qdosmsq template at some point where I can get rid of these problems. For best results, always click on a link named 'start'.

However, as with all good things, the new template has it's own set of problems. Well, one big problem in my opinion and I've suffered from this in the past as well. It's called Internet Explorer!

Basically, most web sites nowadays (well, new ones anyway) are no longer 'best viewed with IE5 or greater' as they used to say. They are actually best viewed with a standards compliant browser. IE is not one of these - even at the latest version (IE7 at the time of writing). Put bluntly, IE is severely broken and so far Microsoft have no intention of fixing it. This problem existed in previous versions of IE and has not been fixed yet.

IE cannot do something called 'absolute positioning' when using a Cascading Style Sheet (CSS) and the templates for most Wikis use CSS, so IE users need to either suffer or upgrade to a working browser.

Gone are the days when Microsoft decreed and the world followed along like so many sheep, it's no longer the case. The world is heading towards standards and if Microsoft refuse to follow along (as a single sheep?) then they will be left behind.

If you view my website using IE then you will see the left side of the screen is 'missing' until you reach the bottom of the content, whereupon the left side miraculously reappears underneath everything else on the page.

To fix the problem, download Firefox from http://www.mozilla-europe.org/en/products/firefox/ or Opera from http://www.opera.com/ and enjoy QDOSMSQ as it should be! I have tested the site with both of these browsers and both work perfectly well - although Opera 9.5 is a wee bit quicker than Firefox 2.0. Version 3 of Firefox also works and is itself quicker, but still in beta at the moment.

And finally, if you type qdosmsq into Google, my web site is the top one listed! I finally have a top ranking web site in Google!!!

The second most relevant hit is a Microsoft Live Search results page that manages to find it when looking for 'Dunbar Consulting' but completely fails to find the real Dunbar It Consultants web site at http://www.dunbar-it.co.uk Dear oh dear!"
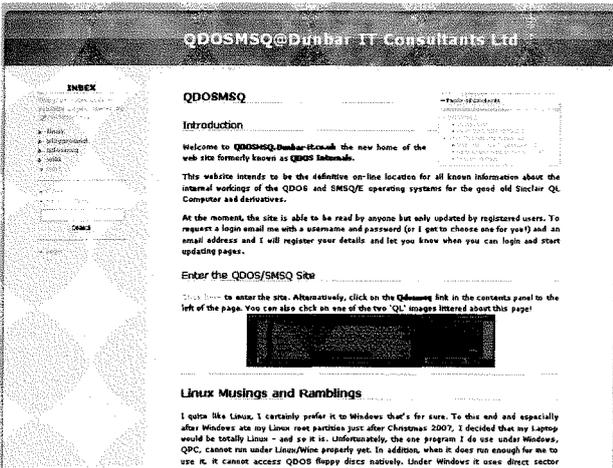
New Vintage WINE

It may be the right time of the year, but this item is not about Beaujolais Nouveau.

Both **Norman Dunbar** and **Marcel Kilgus** report good experiences with the latest version of WINE. Some Linux users have experienced problems running QPC under Wine.

Norman wrote on the QL-users email group:

"After much wailing and gnashing of teeth recently trying to get QPC to run under Linux and Wine, I finally have a working QPC, none of that nasty keyboard repeating problem - so far - and I'm a happy camper once more.

All I did was install OpenSuse 11.0, patch to the latest releases etc, installed 'wine-0.9.64_aka _1.0.rc3-2.1' from the OpenSuse DVD and everything 'just worked'!

My settings on startup are as follows:
Display Driver = DirecDraw HAL
Colour depth: High Colour
Resolution: 800 x 600
Window Mode: ticked, 800 x 600
Keep aspect ratio: ticked
Foreground Prio: Normal
Background Prio: Lowest
Memory: 16 MB
Country Code: 44
AltGr function: AltGr
Everything else is blank, unchecked or not selected - accordingly!"

Marcel responded:

"Wine 1.0 has been released a week ago and my tests so far were pretty promising. It worked very well, even though I was only able to check it out from work over a remote connection, i.e. the PC running QPC was 10 km away! Still it was fully usable and responsive, keyboard entries being no problem at all.

So I suggest anybody who wants to run QPC under Linux should check out the final 1.0 Wine release.

By the way, using Wine I discovered a problem with the QPC_WINDOWSIZE routine, I suggest to not use that command until I do the next release, at least under Wine. It's a pretty tricky bug and under Windows the situation might be just a tad different as to not be a problem at all."

Not A Bug

Marcel also responded promptly when a Swiss QL-er thought he had belatedly found a millennium bug in XChange. Entering the date command in Abacus or Archive produced an inaccurate result. For example:

28/-1/2108

Several other users were able to reproduce the error.

Marcel explained:

"This is a clash of the languages. Most abbreviated months are spelled the same in English and German (like "Apr"), but May is "May" respectively "Mai". SMSQ/E is returning "Mai", XChange is looking for "May". You may either change SMSQ/E to English or open XChange in a hex-editor and look for

` janfebmaraprmayjunjulaugsepoctnovdec`

and change that to

` janfebmraprmaijunjulaugsepoktnovdez`."

ASUS Benchmarks

Per Witte has posted some benchmarks for the Asus eeePC on the QL users group:

'I guess you all must be slavering after those benchmarks. Well, although there's no harm in slavering a bit, in the interests of public service, I've just gone and sampled them. Here are the results of my endeavours:

eee Comparative Benchmarks 12.05.2008

```
  1         2        3         4        5

| eee  |  NB  |  PC   |  QXL  | SGC/Au|

C68 Dhrystone v2.1          ms/DS
|    47|    24|  10.6|    -  |   -  |
  DS/s
| 21,115| 41,632| 93,985|  8,892|  5,000|
  VAXmips
| 12,018| 23,695| 53,492|    5.1|   -  |

GCC Dhrystone v2.1          ms/DS
|    37|    19|   8.5|       |      |
  DS/s
| 26,724| 53,419| 118,204|      |      |
  VAXmips
| 12,018| 23,695| 53,492|       |      |

Bogomips v1.4
bogomips
|   28 |  58  |  165  |       |  13.8|
```

1) eee PC, 4Gb Surf, nominally 900MHz, but possibly only 6-700MHz, running the standard Linux, latest Wine and QPC2
2) Notebook, 1.2GHz, 600MHz FSB, WXP
3) PC, 2 Core duo, 2.66GHz, Vista
4) QXL 20 MHz under W98 DISP_UPDATE 1,0 (D Santachiara, 28/08/1999)
5) SGC/Aurora/24MHz/4Mb/SMSQ/E2.90/Cache on (JG & P Witte, March 1999)

9 years ago it seems we were happy to put up with a fraction of the speed of the eee PC!'

Possible Cover Disk

At the Manchester show a reader suggested QL Today could publish a cover disk of some of the longer programs that have appeared in the magazine. Another reader suggested he would like to have a disk of some of the Gee Graphics programs.

QL Today is seriously investigating these suggestions, but it may be some time before we can give a definite answer. In the meantime we would like to hear from readers if they would be interested in such a disk and the programs they would like on it.

The problem with the Gee Graphics series is that some of the longer programs were published over several issues in small sections. The editor is working on the feasibility of combining these into the larger programs, but in so doing has introduced a bug that is proving elusive to trace. Work on the suggestion has been halted while this issue of QL Today is being produced.

Who's Who?

The last issue of QL Today gave reader Mike Bedford-White quite a shock. In our report of the Manchester AGM he thought he saw a photo of the ghost of the late Dennis Briggs. He then realised that Dilwyn Jones strongly resembles Dennis Briggs. Can you tell who is who? At about the same time another reader sent us a video clip which he strongly maintains was taken at the AGM and presumably shows the Quanta Committee in action. The editor has chickened out of publishing this one. He is already in enough trouble with Quanta.
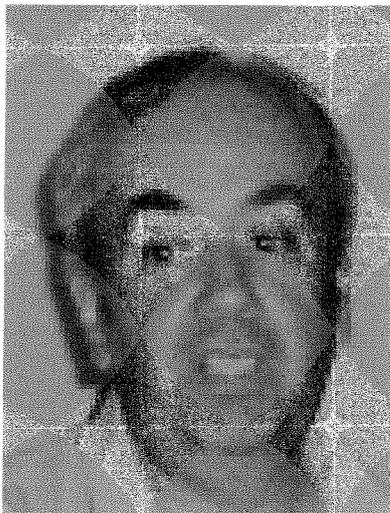
QPC2 + Wind

So much has been said about the eeePC ... but if you want to run QPC2 on a small PC, look at the Asus Wind. Priced at EUR 399, but with larger display, 80GB harddisk, WLAN, Bluetooth and much more, there is no need to fiddle with Linux as it comes with Windows XP pre-installed. We can confirm that QPC2 runs happily and very fast on it!

Relative Path Names and QL Emulators

by Dilwyn Jones

While developing QL On A Stick, one of the problems which plagued me was how to ensure that everything would run correctly from the USB pen drives, given that you could never predict which drive letter a particular PC would assign to the USB pen drive when it was plugged in.

I regularly carry QPC2 around with me on a USB pen drive, so that I can use it wherever I go. It is frequently impractical to carry a laptop around with me, and most people don't appreciate you installing software on their PCs, even if you intend to remove it when you are done. Most people are reasonably amenable to you plugging in a pen drive, especially if they know they have good anti-virus on their machines and that you also use one on your home machine (only common sense really).

There is such a thing as "zero footprint software" which you can put on these drives and use reasonably at will, and does not leave any trace of itself afterward. QPC2 (and other QL emulators) fall reasonably into this sort of category, although Qemu-Lator, for example, does leave a little bit of information such as a registration key in the registry, so may not be quite as "footprint free" as QPC2 in this respect, and I really don't know if QL2K does or not, so I will concentrate on QPC2 here.

It doesn't really matter if you have a copy of QL On A Stick for this purpose - a registered QPC2 user can quite easily copy a minimal set of files to a USB pen drive and configure it as a portable and footprint-free system for use when you are away from your main computer. I am not sure if buying QPC2 technically lets you do this, we would need to get Jochen and Marcel to explain licensing terms in more detail to resolve that issue, but since the main purpose of what I'm about to explain is to allow you to continue to use QPC2 when you are away from home (i.e. you will only ever be using one copy at a time, whether it be the copy on your computer at home, or the copy you carry with you on the pen drive), I can't see it being an issue if you are only able to use one copy at a time.

To be able to run a registered copy of QPC2 from a USB pen drive, you need the following minimum set of 3 files: QPC2.exe, SMSQE.bin and REGISTER.KEY, plus of course a suitable QXL.WIN file.

Absolute and Relative Paths

Windows filenames follow completely different conventions to QL ones. And QPC2's drive configuration screen lets you get at most of what Windows would allow you to get at. The simplest way of specifying where a QXL.WIN or a DOS drive lie is just to type in the path name - if it is on one of the drives of the computer you always run QPC2 from, there is no problem, just type in the path name, e.g. if the QXL.WIN is in the root directory on the C:\ drive you could just specify it as C:\QXL.WIN. This is called an absolute path reference, it is fixed, and does not change.

For the purposes of this example, we will assume that you have put the emulator in a directory called QPC2. The QXL.WIN is in the root directory on the same pen drive. Figure 1 shows the WIN and DOS drive assignments screen.
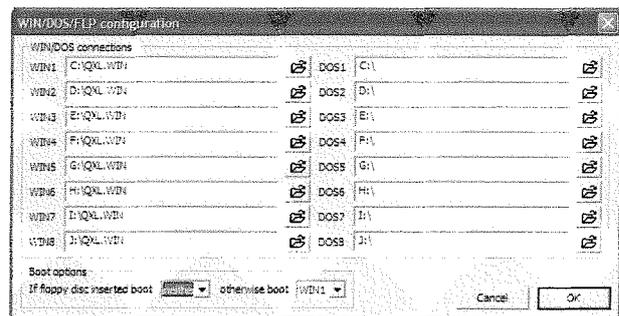
Figure 1 - QPC2 drives configuration screen

If your pen drive is plugged into a PC and the PC gives it the drive letter E:\ you could of course configure QPC2 to look for its QXL.WIN on E:\QXL.WIN and that would be fine for that PC. However, plug it into a different PC and, oops, that PC suddenly decides that the pen drive is drive K:\ and all of a sudden it can't find its QXL.WIN any more. One way around this is to go to the devices screen in QPC2's opening configuration dialogue and just set it each time as required. Nothing wrong with this, it's a fairly minor inconvenience each time you use it. But there is a simpler method, known as relative addressing, which can make even the "minor inconvenience" redundant.

Windows and DOS filenames let you specify path names relative to where you are now. Suppose

that your copy of QPC2 is running in a directory called QPC2 and your QXL.WIN is also located in this directory. For WIN1_ we can simply type in QXL.WIN without a drive name and QPC2 will look in its own directory for the QXL.WIN. Suppose now that the QXL.WIN is not located in this directory but rather in the root directory. That is the next level of directory up and Windows allows us to specify "next level up" by means of two dots, so for WIN1_ we could now specify it as: ..\QXL.WIN. So although QPC2 is located in, say, E:\QPC2\ (full path and filename would be E:\QPC2\QPC2.EXE), this makes it strip off the current directory and look in the next level, which is just E:\

The DOS drives of QPC2 can be handled similarly, though this may not always be quite as useful. If QPC itself is in the folder E:\QPC2\ we can make DOS1_ read that folder by specifying its pathname as a single dot (a single dot refers to current directory). If we wanted it to read the root drive, we could specify it as .\

We can, if need be, refer back more than one directory by using a '.\' for each level. Suppose QPC2.EXE lives in a deeper folder, something like E:\QL On A Stick\QPC2\QPC2.EXE, but you still keep the QXL.WIN in the root directory. So, WIN1_ could be defined as: ..\..\QXL.WIN which means that the QXL.WIN is found two levels of directory further back than the one which holds the emulator program itself. You should be able to apply the same thing to the DOS drives as well - in this case if you define DOS1_ as just .\.\ it would read the root drive (two levels of directories back).

Another handy thing about this is that you can use this to specify other directories relative to the current one. As a slightly more complex example, my USB pen drive runs QPC2.EXE from a directory called \QPC2\ but I also carry a copy of the Quanta library CD on this pen drive. This is a QXL.WIN, in a folder called QuantaCD. So a list of files on the pen drive E:\ looks like this:
```
E:\
QPC2 ->
QuantaCD ->
QXL.WIN
```

My main QXL.WIN is in the root directory, so WIN1_ gets defined as ..\QXL.WIN
WIN2_ is set up to read the QXL.WIN in the QuantaCD folder. So to access this we need to go back one level of directory then enter the QuantaCD folder from there. So WIN2_ gets defined as: ..\QuantaCD\QXL.WIN

You can also specify these relative path names in WIN_DRIVE and DOS_DRIVE commands to re-assign drive names on the fly. This may prove less useful, but it is handy to know, nonetheless. So to temporarily assign the Quanta library to WIN3_ I could then use
```
WIN_DRIVE 3,'..\QuantaCD\QXL.WIN'
```
(note that the path name must be in quotes in WIN_DRIVE and DOS_DRIVE commands since unquoted strings on a QL may not include characters like : and \).

UNC Names
UNC stands for either Universal Naming Convention or Uniform Naming Convention. It is a naming standard which lets us specify the location of resources on a local area network. So rather than just specifying where on our computer we find files, the UNC names can refer to files in directories on a server or another computer on the network.

There is no real QL equivalent to this beyond just specifying a QL network station letter and number before the drive name e.g. if we wanted to access a file called SAMPLE_DOC in a folder called docs on WIN2_ on QL network station number 5, we would use the device name n5_WIN2_docs_SAMPLE_DOC.
UNC names use the following format, which if you are not really used to DOS and Windows filename formats may not make much sense:
```
\\server_name\shared_resource\path_name
```

Suppose we have a server machine which has been assigned the name "fred". We are allowed to access a folder called "mydocs" on this machine. SAMPLE_DOC is in there:
```
\\fred\mydocs\SAMPLE_DOC
```

This can be extended to access other computers on the network (as long as the resource we wish to access has been made "shared" (other computers are allowed to access them). In this sense, a "resource" is a vague term which can refer to a directory on a server's hard disk drive, something on another computer on the network, or peripherals like a printer somewhere on the network, for example.
UNC names take a bit of getting used to at first, since you have to learn in what order to list the parts of the name between the various back-slash symbols, but if you are on a network it can be very useful.

Here is a simple example:

I used to work in a small office which had four PCs for the staff working there, a file server and various printers. One printer was a high quality laser printer connected to the office manager's machine and used for all correspondence and anything which needed high quality or "dry" printing. The other printers were cheap and cheerful inkjet printers, which were used for draft printing, running off copies of emails and any job where quality wasn't too important.

Needless to say, I used to sneak in a copy of QPC2 on a CD in those days (no QL On A Stick then!) and would be happily QLing on my lunch break or when I had run out of work for the day. Every now and then, I used to print something off on my inkjet printer on my PC. Every once in a blue moon I would fancy using the office manager's laser printer to print something (with her permission of course). Marcel Kilgus explained UNC names to me in those days and showed me the various ways of accessing other printers and drives on computers over the network. The hard part was working out the full path names I needed to enter, but once done it could be saved and next time I needed to use the laser printer, I just made sure QPC2 was pointing at that printer instead. I was even able (out of sheer devilishness!) to store QXL.WIN on the other staff's computers as long as it was in shared folders. The other office staff used to watch me running software for another computer on my PC, which in turn accessed some files on their machines, then printed on another machine, and so on and thought I was very clever. Even though it was Marcel's work which was clever, needless to say I usually let them think I was the clever one (Kudos not QDOS?)

These are largely unsung facilities of QPC2 that it can use relative path names, UNC names, and access resources over a PC network, for example, armed with the right information. Basically, what Marcel seems to have done with QPC2 is to make sure that the drive assignments can indeed access most names that most PCs can access over a network.

Other Emulators

In general, once you have understood the principles of relative addressing and handling Windows-style filenames in general, it is broadly possible to get other emulators to accept these, although not all emulators are as easy as QPC2 in this respect and in the case of QemuLator in particular you have to resort to some trickery to achieve the same things.

QL2K

QL2K was at version 0.1 release 100 at the time of writing this article, so these notes refer to that version.

From QL2K's opening screen, select the [MDV WIN] button at the bottom to go to the drive configuration screen. It should look like figure 2.
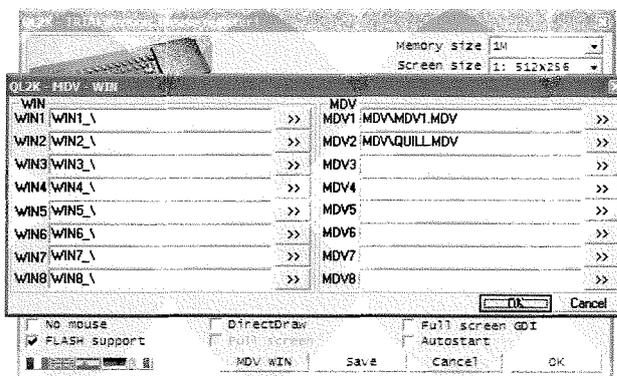
Figure 2 - QL2K drive configuration screen

If you click on the [»] button alongside each drive assignment box, and locate a qlay.dir file (this is the Windows file that holds the QLay or QL2K directory files) it will be placed in one of the WIN drive definition boxes as a Windows path, such as this one:

E:\QL_On_A_Stick\QL2K\WIN2_\

However, the WIN folders holding the QLay.DIR files are contained within the folder which holds the QL2K executable file, so we can quite legitimately click in the drive box to manually edit this path to be a relative path as follows:

WIN2_

Fairly simple, eh? Same principles apply to QL2K as to the description for QPC2 above, except of course that QL2K cannot access QXL.WIN container files.

QEMULATOR

This is slightly less easy, as we have to edit a system file to alter absolute path references to relative ones.

Figure 3 (on the next page) shows the QemuLator file selection screens.

Once we have selected the drives, QemuLator stores them in a .QCF file, (QemuLator Config File) which is a plain text file holding a list of the various defaults and configuration settings. You can edit this in Windows Notepad or import it into a QL text editor as long as you are careful to save it with the correct end of line settings. Here
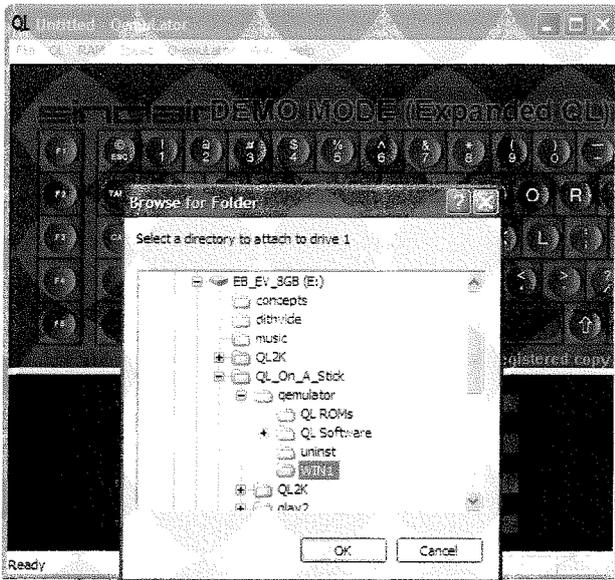
Figure 3 - QemuLator configuration screen

is a sample I prepared to illustrate what such a file looks like.

```
Ram=640K
MainRom=QL ROMs\Minerva197_rom
BackRom=QL ROMs\TK2_rom
BackRomActive=Yes
ExpRom=
ExpRomActive=No
UseFloppyName=Yes
FloppyName=Flp
UseHardDiskName=Yes
HardDiskName=Win
HasRamDisk=Yes
RamDiskName=RAM
HasParPort=Yes
ParPortName=Par
TCP=On
Subdirs=On
```

```
Speed=Full
FastStartup=Yes
AutoStartSession=No
FirstKey=None
DisplayMode=Window
AcceleratedGraphics=Yes
Sound=On
Joystick1=None
SER1=COM1
SER2=COM2
SER3=COM3
SER4=COM4
Slot1=E:\QL_On_A_Stick\qemulator\WIN1
Slot2=DISK_A
Slot3=QXL:..\qxl.win
Slot4=Empty
Slot5=Empty
Slot6=Empty
Slot7=Empty
Slot8=Empty
WindowHeight=477
```

The lines we have to look for are those which start with slot1=, slot2= and so on. These hold the eight drive definitions allowed by QemuLator. You will see that slot 1 has an absolute path reference E:\QL_On_A_Stick\qemulator\WIN1, while slot 2 refers to the floppy drive DISK_A and slot 3 refers to a QXL.WIN which is in the previous directory and referred to by the relative path ..\qxl.win. The WIN1 folder is in the same folder as QemuLator, so we edit the slot1= line to just Slot1=WIN1

This article is rather technical in many ways and only relevant to QL emulators running on Windows systems. I hope someone finds it useful.

Report of the 11th Italian QL Meeting
by Davide Santachiara

Premise

The QL has been my loyal companion since 1986 even though I rarely use it now. What is more difficult to explain is how much I owe to this little computer: I learned English reading the QL guides, and have learned programming in machine code and SuperBASIC. All this know-how was a considerable advantage when I started work. Even more important I had the honour to meet some very charming people all over the world and among them one of my best friends (Marco Ternelli, author/co-author of most of the Ergon Development software). I had the chance to travel with Marco to many Italian and international shows and I spent thousands of hours programming: it was really a lot of fun.

I owe a lot to the QL but I also tried to give something in exchange. Since 1995, when the economic aspect was already in huge decline and only passion mattered, I tried to keep the Italian QL users united by both organizing all the events/meetings, setting-up and moderating a

mailing list, helping, as far as I could, QL users in solving their problems. This is the list of the Italian meetings I organized in Reggio Emilia where I live:

- 4th QL meeting January 1993
- 5th QL meeting September 1993
- September 1994 - Garage meeting (looking at Antonio Gareffa's DVD - see later - it is amazing how many people my parents' garage has been able to accommodate)
- 6th QL meeting May 1995
- 7th QL meeting November 1995
- 8th QL meeting October 1996
- 9th QL meeting October 2000
- 10th QL meeting October 2003

Meeting 2008 – Organization

My free time is now reduced to a minimum due to my work and the presence of a 15 month old child. It would have been impossible for me to organize a meeting like the previous ones. The last meeting (2003) had been a good success, 35 people (including traders) had attended. To achieve this goal I sent out hundreds of letters, I phoned dozens of people personally. Today it would be impossible for me to devote the same effort to the QL. If you look at the frequency of the meetings it has been decreasing exponentially. I decided it was time to be realistic: even with the same effort of 2003 I would have not been able to gather more than 20 people. So I just made a few phone calls and sent emails to all the people I had in my records. Sadly I received one reply from the daughter of Maurizio Porzio who informed me he passed away two years ago.

Luckily, thanks to the company for which I work, I had permission to use two company meeting rooms. That was a very nice opportunity as they were free and I could be flexible in deciding the meeting date.

It was, of course, a pity that for the first time no foreign trader was able to attend. Apart from the late notice it is clear that it is now almost impossible for them to cover the costs of the trip. In a sense I was relieved by this as the risk of making some people unhappy was extremely high. However, we now have nice and cheap opportunities to be in touch via video conferencing, and I offered everyone participation via Skype. This allowed Daniele Terdina, author of QemuLator, to make a very nice and interesting presentation from his home in Seattle (you probably know he has been working for Microsoft for many years).

Participants

I would like to personally thank all the people who attended the meeting, in no particular order: Romaldo Parodi (the Hardware man), Andrea Carpi, Paolo Carpi, Adelchi Moscardini, Antonio Gareffa, Emiliano Barbaini, Mauro Vanni, Augusto Del Sante, Gino Sestilli, Ludovico Marchisio, Alberto Rubinelli, Elia Bellussi, Daniele Terdina (from Seattle - Skype), Enrico Maria Giordano (from Rome - Skype)

Meeting

The meeting did not follow a particular agenda - our only scheduled engagement was Daniele Terdina's telecom at 4pm. In the morning the following ideas and requests came out:

- It would be nice to have a PCI card (or USB?) with a network port in order to easily interface QPC2 with standard QLs.
- Romaldo Parodi described a clever way to refurbish microdrive cartridges. In fact after many years the small piece that keeps the tape against the microdrive just detaches.
- We talked about some lost QL users. Now most of them are just collectors and no longer real users. For information the Italian mailing list has at present 60 users who appear to be active (i.e. people who apparently receive the emails)
- Ludovico Marchisio asked for a goal-seeker function in xchange/abacus. This function, that allows to automatically change a cell till another reaches a defined goal, is very useful

to solve many types of mathematical problems. This is a function I personally use a lot on excel.

- It would be very useful to make QPC Print compatible with QemuLator. Perhaps both sales of QPC Print and QemuLator could benefit from this.
- One question was about why the Q40/Q60 have not been further developed, together with TCP/IP stack. It is a bit sad that due to the licence saga we have perhaps lost some developments. I have also understood that in the past it was not so easy to deal with Peter Graf.

Ludovico Marchisio's solar panels
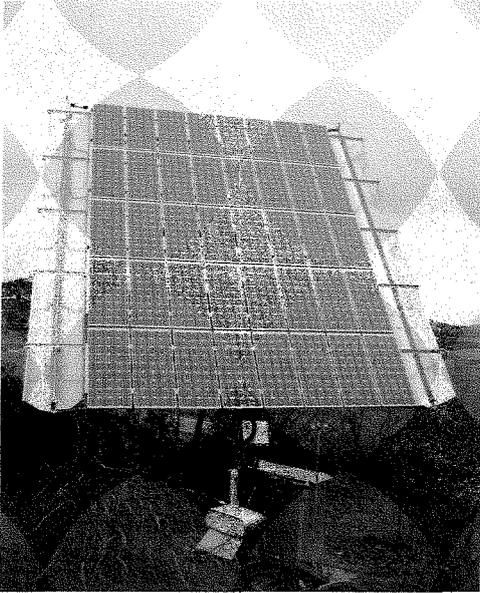
Before lunch Ludovico Marchisio presented the software, developed on the QL, he used to develop home-made solar panels he built and installed in his home on the hills between Lombardia and Piemonte. You can see a screen shot of the QL software and of the self-made solar panel in the next two pictures. Pity it was not possible to use the QL to drive the solar panel (a commercial PLC is being used).
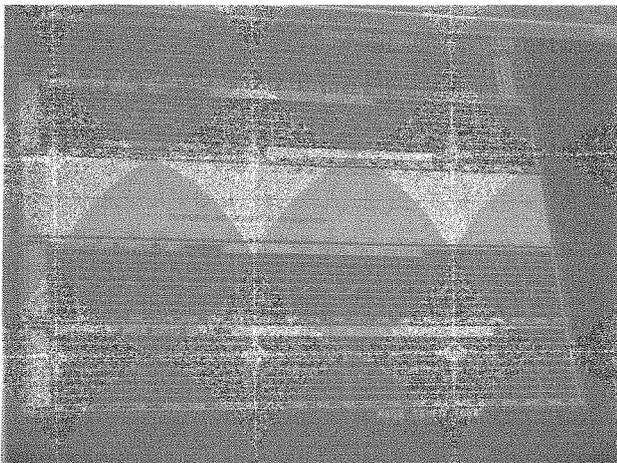
Lunch time

We then had a very rewarding lunch at a trattoria close to my company with traditional Modenese dishes, tigelle and gnocco fritto. The second guy on the right with the white shirt is Alberto Rubinelli admiring his tigella with Nutella. For many years Alberto has been collecting an incredible number of old computers (over 2000) which are now stocked in the "Computer Museum"
www.oldcomputers.it

QemuLator

In the afternoon we had a nice video conference with Daniele Terdina from Seattle where he presented the latest features of QemuLator. The

latest version is v2.5, it is Windows Vista compatible and should be officially released very soon. For the time being v2.4.1 is still the official version, however some of the new features described below refer to the new version.

The main feature of this QL emulator is to guarantee compatibility with all the QL software including old games with microdrive protection. A utility that is given to registered users allows the transfer of the microdrive content including the protection to a file which QemuLator will then read. All ROMs can be used on QemuLator including very old ones such as AH, JM, JS. Of course it runs with all Minerva versions and the Super Gold Card version of SMSQ/E. QemuLator also supports the extended graphics of Aurora like Mode 4 at 1024x768 or Mode 2 (256 colours) at 512x480.

Of course a large number of other parameters can be set such as the QL memory, its speed (to be able to play old games on a fast PC), the pre-

sence of the QL EPROM, etcetera. These parameters can be saved on configuration files that can later be retrieved to make the boot almost immediate.

QemuLator not only maintains compatibility with old QL programs but also supports new features such as the TCP/IP stack in case your host PC has an internet connection. The 8 QL devices (e.g. win1 ... win8) can be linked to:

- QDOS floppy disks
- QXL Hard Disk files (i.e. _win files)
- DOS Directory
- The latest version (2.5) also allows to link the virtual drive to a special zip file (QLPAK archive) which contains QL software and also the QL configuration such as memory and so forth. In this way loading a game can become almost instantaneous: just double click for instance on your chess QLPAK file on Windows and magically QL chess will appear on QemuLator (see picture below)

Q60 graphic at 16 millions colours. This however can be only done by direct access of the screen (it cannot be used via standard QDOS calls). Daniele showed an interesting demo whose screen shot is represented below (unfortunately in b/w on QL Today)
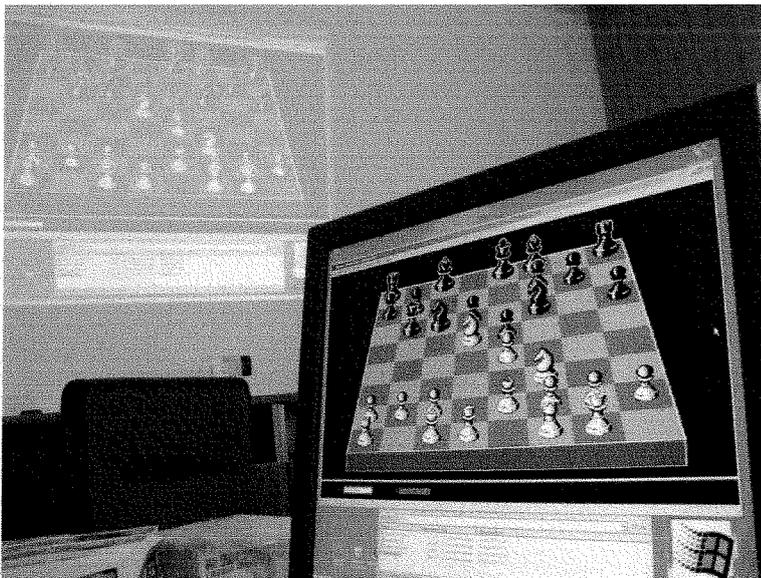
One question for Daniele concerned the possible future development of the MAC version of QemuLator. The answer was that no updates can be expected on this version as the latest version was developed for PowerPC and now with the new processors and MAC o/s 99% of the o/s calls changed so the effort would be unmanageable. All Daniele's effort will be put on the Windows version.

QemuLator includes an internal Mouse driver that works with both the pointer environment and smsq/e. With SMSQ/E QemuLator emulates not only the Aurora extended graphics but also the

Daniele has also developed a faster version: it is named QemuFast and it is almost 4 times faster than QemuLator. However it does not work with programs that make use of self-modifying code. I remind that the registration for the full version of QemuLator costs 40$, less than 30 euro and can be easily done from the QemuLator web page
http://terdina.net/ql/q-emulator.html

Euroconverter

Andrea Carpi demonstrated the new version of Euroconverter with the new entries of the EC: Cyprus and Malta. The new version can be downloaded from my web page:
http://www.geocities.com/dsantachiara/qlpage.htm

Antonio Gareffa's DVD

The last section of the meeting was a presentation of Antonio Gareffa's incredible DVD production which covers all the Italian QL meetings since 1990. While the first DVDs were just a digital conversion of the videos taken with the camera, the last ones are really professional works with music, special contents, special effects and slide show. Some of DVDs could also be of interest to foreign people as they include many

interviews (in English) of the QL traders who participated at the past Italian meetings. You can contact Antonio at the following email address: **astrelster@gmail.com**

Conclusion

It was nice to have attended this informal rendez-vous with the good old QL friends. The attendance was more or less what I could have expected, as without new software and hardware development it is very hard to convince people to travel for hundreds of kilometres. What I shall continue to do is to try to support Italian QL users (with help of other people of course) as far as I can and from time to time it would be nice to continue to meet even if only informally. After all it was a nice occasion to use the QL (or rather the emulators) again and remind ourselves of some good software we developed in the past. For instance I still use Masterbasic that in my opinion really is an invaluable tool for Superbasic program development. I must remind you that most of our software can be freely downloaded from my web site **www.geocities.com/dsantachiara**

People who would like to have more information can contact me. The colour version of this article will be put on my web site as PDF file.

What Sir Clive Sinclair did for Me

by Norman Dunbar

You never know where in life, a decision you make today, is going to take you!

When I was at school I had very little money and worked in a newsagent's shop in Elgin - where I lived - to earn money to by the electronics magazines I loved to read. I didn't have a clue about electronics back then - still don't in fact - but I liked building things.

In those magazines there were always adverts for Sinclair products and I wanted them all. I have no idea what the attraction to Sinclair was but the calculator, the watch, the TV etc seemed to be 'just what I need'. Unfortunately, I didn't have the cash to ever buy any of them. But a boy can dream can't he?

I left school at the tender age of 17 way back in May 1977 with a number of decent (Scottish) qualifications - this was in the days when they actually were hard and had to be worked for. I immediately started work as a Honda Motorcycle mechanic and was soon running the workshop and 4 other mechanics.

The only computers I had known about in those days were the one in the Maths Lab at school (never used it, never saw it!) and the diagnostic device we used occasionally on particularly hard to determine engines.

I soon departed from that position - the company was moving to Ireland - and started a new job in a Hire Fleet in Inverness, in January 1980, working on Outboard motors (Yamaha mostly) and private yachts etc. By now I had started buying Personal Computer World and was teaching myself Basic programming from the listings printed within.

1981 came around and my boss noticed my PCW magazine and asked if I was interested in computers. I said yes. He then said, and this is where it all started "I bought a ZX-81 for my son, do you want to buy it off me - it is unopened?". I think I paid £72 for it there and then - well, over a period of a few weeks I did and so I was sitting in front of a TV screen (in the waiting room in the Hire Fleet buildings) typing in examples from the manual. That was it, I was hooked!

Little did I know where that one decision was to lead me.

At the same time, I used to run a disco (remember those?) called Instant Replay. It wasn't mine, I worked for the chap who owned the equipment and so on, but we were quite popular at the time. My own record collection had grown and grown as I added 'stuff I though might be good at the

disco' and one day, I decided I would computerise my paper based indexing 'database'. So I started writing code.

Now, bear in mind that I was writing a database system on a stock ZX-81 with 1KB of RAM to index a record collection of some hundreds of items of varying kinds - singles, 12" singles, cassettes, LPs - no CDs or DVDs in those heady days!

Over the course of a few evenings, I managed to finish writing the 'DBMS' code and started typing data. I managed to get about 10 records loaded into RAM before the 'Out of memory' error occurred. Hmmm. Need more RAM.

I saved hard over the weeks and eventually sent off for a proper keyboard (and case) from my ZX-81 and a Cheetah (I think) 56KB RAM pack. The whole lot was built into the keyboard case and a very nice system was had. I even added a Currah μSpeech for speech and sound - but the TV sound was abysmal and the close proximity of the TV to the computer caused masses of interference.

›From one of the monthly electronics magazines, I built a ZX-81 I/O interface and was soon flashing LED's (but only 8 of them) in various random and sequential patterns. Those were the days.

I never did get my record collection indexed! I sold the lot and bought a Spectrum 16K (all I could afford) from Boots the chemist in Elgin where I was living. I coveted the Interface 1 and microdrives but they would have to wait for another week! I converted my ZX-81 I/O board to run on the Spectrum and I was soon flashing those LEDs again!

The learning process began again as I attempted to master the changes between ZX-81 and Spectrum. Colour was a new experience as was the 'pixel resolution graphics' (but with block resolution attributes!)

Christmas came and my girlfriend bought me a copy of Dr Ian Logan's Spectrum ROM Disassembly book. I saved my Christmas money and spare cash from work and eventually I could afford interface 1 and one microdrive with 4 cartridges. I never had any problems with those, nor did I find the Spectrum's rubber keyboard to be a problem.

Back at work, things were not going well. For some reason, all the problems of the world were my fault - according to my boss - and so I decided to leave. I got a place in college in Elgin on a NCC Threshold Scheme to study computing for 6 months with a further 6 months in placement in industry doing it for real. I took to it like a duck to water!

After 6 months, I easily passed my exams and was approached by the college to enter for the exams for a course I had not attended, I accepted their sponsorship and passed those too - with a distinction. Then I began 6 months in placement in Aberdeen at the North Of Scotland Hydro Electric Board's Computer Centre. By now I was fluent in Cobol - well, I'd done it for 6 months, what more was there to learn?

Lots, as it turned out, but I learned and was apparently well thought of at NOSHEB. So much so that they offered me an interview for a permanent position there - subject to passing the aptitude tests etc - so I went for it. The tests were a breeze - I got something like 98% - and then the interview came and went - with equally good results. I was praised for the quality of my work (not like nowadays then!) and then the bombshell came. I had actually come out as the best candidate ahead of two others who had obtained a degree, but because the rules were 'you must have a degree' I couldn't have the job.

The two people with degrees had one in History and another in Psychology so they got the job and I didn't. How depressing is that? They actually left after 6 months anyway - so it was NOSHEB's loss.

My 6 months was coming to an end and NOSHEB needed a system written to allow office staff the ability to reconcile the forms and money collected by the meter readers. (In those days some people had electricity meters that you put money into to get power out of!). I was given the task of designing and coding and implementing the system all by myself. I did so, and was kept on at NOSHEB for a couple of extra months to finish it, document it and roll it out. They ended up rolling it out all over the North East of Scotland in every NOSHEB office!

I still had no job, so a position came up back at college on a Computer Science diploma course, I applied and was accepted, even though it had started while I was at NOSHEB. It turned out that the course was wrongly named as well, it wasn't Computer Science, but Computer Data Processing - not the same thing. After two years I sat the exams, passed with distinction again and was ready for industry. Unfortunately industry didn't want me but Local Government back in Aberdeen did.

I stayed there for about 11 years until 1996 progressing through the ranks from Junior program-

mer (that lasted about two weeks!) to programmer to Technical support to Database administrator. I most enjoyed the database part of my job and being in Technical Support - much better than applications support, which was no fun at all.

Obviously, with all the money I was earning, I purchased a QL. I bought it for £164 from a computer shop in Aberdeen and was lucky enough to get a JS ROM version. Again, I started on the learning process - different version of assembly for a start with the new processor - no more Z80!

About two weeks after I bought my QL, a colleague also bought one, from Dixons, he only paid about £120 and he got a free 8032 Serial printer! Boy was I miffed!

I enjoyed my QL for a long time, I still do, but eventually gave in and sold my soul for a PC. It was a 80386DX processor and had 4 MB RAM (yes, MB!) and a 40 MB hard disc that had been Stac'ed to 80 MB. It had Windows 3.1 and Dos 5 (I think) on it. It took up less room than my existing QL system which by then comprised a QL, Gold Card, Star LX81 colour printer (dot matrix) a pair of 3.2 MB ED drives and a pair of HD drives all hanging off the back of a Miracle 'extender' to allow my Gold Card the ability to run 4 drives instead of 2. The printer was also attached via a Miracle interface, the wonderful serial to parallel converter.

I liked Miracle kit and had added a Miracle Hard disc as well. My credit card suffered a lot in those days! My problem with my system was space. Everything was long and a QL with a Gold Card and extender was even longer! Add on the fact that the hard disc had to be up close to the back of the QL and it got a wee bit unworkable. But I loved it.

The PC replaced all of the above and was more compact - surprisingly enough. Still on a Miracle hunt, I purchased a QXL card at a show in Chester (The Queens Hotel - anyone else remember being there?) and my life was complete. I had my PC and my QL all in the same box.

1996 came and I went! South, to Bradford with my soon to be wife Alison. Scotland was undergoing changes, brought about by the then Prime Minister Maggie Thatcher and it was apparently her job to close down those parts of the country that didn't vote for the Conservatives. I believe Wales had similar problems.

Jobs were vanishing as fast as she could get rid of them and my position at Aberdeen City Council - as it now was - was under threat. Rather than

wait to be pushed, I decided to jump and applied for, and was successful in getting, a position as a developer in a software house, Tenhill, in Leeds. Alison had also got a job 'back home' and so we moved south. (The weather is no better!)

My position was as a Uniface developer. That is a system like Visual Basic, but different. I was writing software for companies like BMW Bank in Munich and various other Car manufacturers (banking side!) Europe wide as well as for a number of UK based Banks and Building Societies.

I travelled all over Europe (ok, Munich, Salzburg and Brook in Switzerland) as well as to various UK locations to install (and mostly fix) our software. Happy days - except for the travelling! I soon worked my way out of development and into Technical Support again and then on to Oracle Database Administrator. Much training was given and received!

Tenhill were taken over by the Lynx Group, who promptly went downhill and were taken over themselves eventually. I was deemed to be 'surplus to requirements' by the Lynx Financial Director and made redundant back in 2003. My customers thought otherwise and complained - to no avail. For the next three months I was unemployed and spent many happy hours up a ladder painting the house. I applied for many jobs and had a few interviews but finally got a 8 week contract at Barclays Bank to convert an Oracle database to a more recent version.

I never did that job. Instead I stayed 18 months helping sort out problems with a system that allowed workers in India the ability to process Bank Account applications in the UK. The system was dire and performance was atrocious. When I left, it was well on the way to working properly and indeed I received a phone call about a year later saying how happy they all were with the system now and that my suggested changes had indeed worked!

In 2003 I started my own Limited Company. Dunbar IT Consultants Ltd was born and I continue to work for myself to this day. Alison now works for our company having closed down her own one a while back - it's better having us both work for the same limited company rather then having one each - less accountants fees for a start!

After the Barclays contract ended, I was a week out of work before starting on a two week contract at The Environment Agency in Leeds. That was back in February 2003 and I'm still here at the time of writing (June 2008) - they seem to

like me. My current contract expires at the end of July but I have an interview today for a new position in a two year contract at 'another company' in Leeds. Wish me luck.

So, Sir Clive is responsible for me being where I am today, a happily married company director running a reasonably successful IT company offering Oracle services and also software testing services to anyone who can afford us! I'm still hooked on computers and especially database systems and I enjoy my job.

In my spare time (sadly lacking these days) I write for QL Today, I write programs for fun and I write documentation for the Open Source Firebird Database system. Spookily enough, one of the

developers writing the Firebird Software is a chap by the name of Fred Toussi - Text 87 anyone?

Talking of Open Source, remember this, Linux was started by a chap called Linus Torvalds who lived in Finland and wrote code on a Sinclair QL before he bought a PC and 'had' to write what eventually became Linux because Dos was so bad!

Who would have thought all those years ago when I agreed to buy my boss's son's ZX-81 that I would end up where I am now. Just about everything I have, including my wife Alison, has come from that one decision.

What did Sir Clive do for you?

GPS Program Development and Experience

by Ian Burkinshaw

I have no idea how many people have tried Hugh Rooms GPS program or for that matter how many people may be interested in this line of development. But to my mind this is an ideal area to play with, and I think that is what the QL community is all about, experimenting and tinkering. Hugh's original series about GPS was published in Vol 4 Issues 2,3 and 4. At Hugh's own admission, what was presented was not a finished program. Clearly Hugh had developed his program for his own needs, which is fine. What I want to show in this article is what can be done, and my experience of using two differing GPS receivers. I also think this is at a timely point, with the lastest series of articles about mapping, Mapping Ancient and Modern by Geoff Wicks, in Vol 12 Issue 2. Now at the time of writing I have not seen the mapping software promised in Geoff's article, so I do not know how my development is going to fit in.

The History

A bit of history. I had already built the Camera Watch device that was published in Everyday Practical Electronics, November 2005 issue, some time ago. I made a small modification to this unit so I could get raw GPS data from the inbuilt receiver to feed my QL system. I used a WD-G-ZX4120 receiver for this project, it is available from Crownhill Associates and at the time of writing was £35.19 including VAT. One of the aims of this article is to show what differences there can be between receivers. There is a

datasheet for this module on the Crownhill web site which contains all the protocol information. After reading Hugh's article I thought it may be interesting to build a simple unit similar to the one Hugh had built. Taking note of the problems Hugh had with the wiring of the RF Solutions GPSM001 module I purchased the RF Solutions Evaluation Board. Yes it was more expensive than the receiver module on it own, but it comes with an RS232 port and PC software, which is interesting in it's self. So now I had two receivers. Like Hugh I also built and modified the the January 2004 EPE GPS to PIC and PC project so I could use the Evaluation Board on its own and display longtitude, latitude, altitude and time. Like Hugh I had to modify the PIC code due to the variation in the latitude and longtitude data as will be explained below.
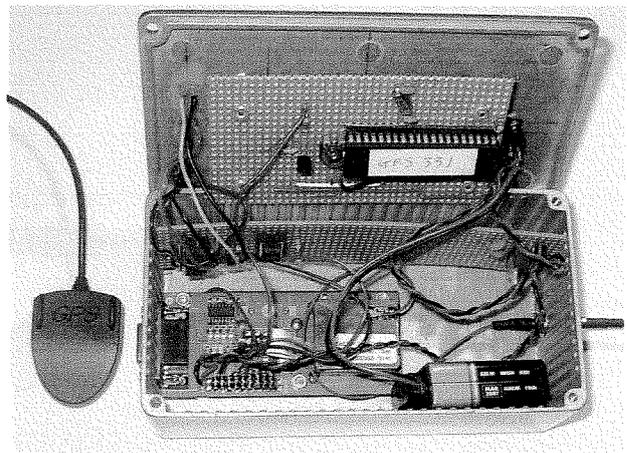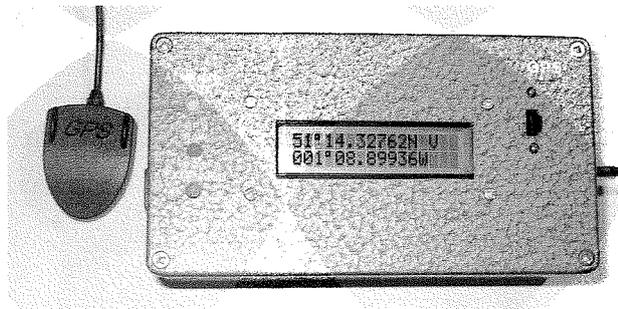
The picture on the previous page shows the RF Solutions development board fitted in a metal case with the PIC display and the LED's display as in Hugh's original article. I also liked the flashing lights, sad I know. The picture above shows the complete unit working.
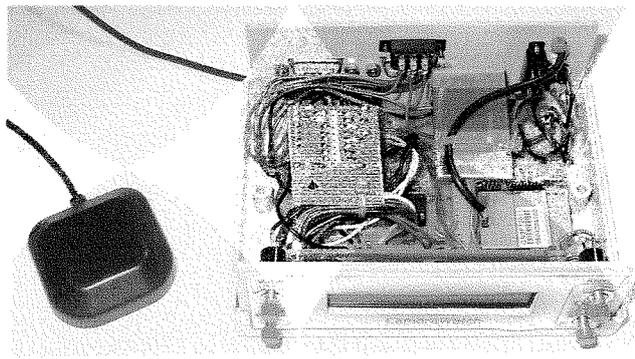
The picture above is my Camera Watch unit. You can see the ZX4120 GPS module, it's the silver box with the bar code on it towards the bottom right hand side. You may be able to see the very fine wiring, not for the faint hearted. I mounted the module on a piece of strip board with double sided tape and short jumpers from the module to the strip board, then wired from the strip board to the main Camera Watch PCB. Also since the ZX4120 required 3.3 volts to power it, there is a power regulator on the strip board as well. This is fed from the 5 volts on the main PCB. The main PCB has it's own 5 volt regulator. So the entire unit can be run from 9-15 volts. The original project was designed for use in a car. On the top left of the unit there is another piece of strip board which is upside down it has a 3.3V to RS232 level converter on it. It takes the data from the GPS receiver and transmits it to the serial port of the PC/QL. One small point of warning with these modules, don't plug or unplug the antenna while they are powered up. The antenna, which are the small black boxes to the left in the pictures above, are fed power from the receiver modules. There is an amplifier in the antenna which requires a supply of power. If you accidentally short the antenna connector you could damage the module. So play safe and switch off before connecting or disconnecting the antenna.

The Software

I typed in Hugh's program and got it running. But found some issues when I tried it with both of my GPS receivers. The first being the data stream from the two recievers were not the same. On further investigation there were significant differences. You would have thought the protocol from two GPS receivers would be the same. Well they are not. Also I am sure there are other variations out there.

So what were the differences that I found. First point to make was that the order of data within sentences are the same. However fields within sentences can differ. The first one was the longitute and latitude data in the $GPGGA sentence in the case of the ZX4120 module the data has 4 decimal points and the RF Solutions module 5 decimal points. Not a major problem but a difference which will change the way and space you need to display the data. Which can make the resultant display untidy.

The second difference was the ZX4120 module issues up to three $GPGSV sentences, where the RF Solutions module only issues two. The third difference is an additional sentence called $GPVTG.

The $GPGSV sentence provides the following data. The number of messages, this can be up to three, but changes over time. Depending on the number of satellites in view. So sometimes you are receiving three $GPGSV sentences and at other times only two sentences. Never seen it go to one, that is not to say it could not. The next element is the Message number, so you now know how many $GPGSV sentences to expect and which sentence is which. The next piece of data is the number of 'Satellites in View', this is what determines the number of sentences since it is a function of the number of satillites in view. That function is carried out within the GPS module itself. The remaining data in each $GPGSV sentence contains details of each satellite in view up to a maximum of 12, with 4 in each sentence hence the three sentences. So when only 8 or fewer satellites are seen then the receiver only returns two $GPGSV sentences. The rest of the sentence contains the satellite ID, Elevation, Azimuth and Signal to Noise Ratio of each satellite in turn. So the first $GPGSV sentence returns data for the first four satellites the receiver can see, the second the next four, and then the third the remaining up to 12. An interesting point is the datasheet states in the specification for the module that it can track up to 16 satellites, however the protocol only shows support for 12 satellites.

There would have to be 4 $GPGSV sentences to support this and as we have seen there are only a maximum of 3. Also in practice, I have only seen 3, so I have only provided for 3. But it would not be to difficult to make it 4 should the need arise.

The additional sentence from the ZX4120 module $GPVTG contains course and speed information. In the case of course it returns true and magnetic headings. Speed data is in both knots and K.P H. Hugh's original program was not designed to deal with the variations in the $GPGSV data in a dynamic way, or the extra $GPVTG sentence. So I set to work. The basic of Hugh's program was spot on and is very good at trapping errors, in fact too good. In Hugh's original program he quit out of the main loop when ever there was a blank field, or a null field if you like. On the face of it does seem a good idea. However the output from the receiver can have valid data after the null field. However you can skip past the blank, null field and there is still good data to be used further along the sentence. Also remember that the sentence has had a checksum performed on it so it is reasonable to assume that all the data in the sentence is correct. I also wanted to make it more of a finished program so for example I developed a front end. Admission here, I have used a part of Dilwyn Jones DateSet program using a procedure called BANNER (lines 1450 to 2400) which I have modified a little. I just like the Banner effect and the drop shadow.

I re-ordered things into what I think is a more easy to read form, a more process orientated order as well, so I did not keep jumping around the place while I was adding my own features and broke some areas down into more procedures.

I also wanted to display more data than the original. Things like altitude, 2D fix and 3D fix this can happen without you knowing when you want to resolve altitude. I also added a new window which contains the signal strength information for each satellite, both as a numeric value and as bargraphs with a peak hold feature. The peak hold stays for 3 passes of data (this can be changed to any value you like in variable holdtime% in line 9930), unless a high value comes along in which the peak moves up and resets the hold time. If the level stays below the peak valve then it resets to the new value after the hold time has expired. So a bit like some electronic audio bargraph level meters. In fact this is a routine I have been developing for another application, so I just reused it. This is why the procedure has 13 parameters, I have 'Remarked' the use of each parameter within the progam,

even though stricly speaking they are not needed in this application. The BARGRAPH procedure is between lines 12480 and 12740.

One major change I made was to decode all the data sentences completely, so I did not have to go back at a later date, if I want to make any further changes to other parts of the program (lines 6970 to 9400). It also makes it easier for other users to adapt the program to their own requirements. I also made changes to the raw data display code so it could handle the changing format of data and keep it tidy. Also keeping the line count correctly updated as well, since the line count changes when 3 $GPPSV sentences are received. As well as the $GPVTG sentence being present also effects the line count which is handled automatically as well. I did have to read the $GPGSV sentence on the fly so to speak, so as to determine how many $GPGSV sentences were present on each pass. Remember this changes dynamically (lines 5490-5500). I also, before decoding online so to speak, tested the incoming stream to see if the $GPVTG sentence is present or not, with the procedure 'test_receiver_sentence' (lines 6250 to 6350). By automating the process the user does not have to know which type of receiver is being used.

Other changes I made were to the display layout, however it is easy to move the windows around. In fact the error window at present does not have any messages sent to it, it was in Hugh's original, I left it in because it may be useful in the future. The window containing the longitude, latitude, satellites in view, satellites used, time, speed and course. I added altitude in feet and metres, speed is now in MPH as well as KPH. KPH is the raw data as received. 2D and 3D fix information is also shown and the date has been added under the time field. If you wanted, you can display both the orbit display and track display at the same time, but I have not done this yet. You will find there are some test lines that I have left in, they were used during debugging and testing the decoding process, you can leave them out if you wish. I have left them in for any future development purposes. I am not saying my program is perfect, and I am sure there are poeple out there that could do a better job of it than me. I was after the features I wanted, not programming elegance. It all adds to the GPS and QL story. So what next, applying the tracking data to a map, maybe moving map display. Also track profile by altitude are posiblities. I am sure there are lots of other things that can be done.

References

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GPS PIC to PC and Camera Watch
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www.epemag.com

QLToday
Hugh Rooms and Geoff Wicks original GPS and
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RF Solutions
GPS Evaluation Card
www.rfsolutions.co.uk

Crownhill Associates
Module available and ZX4120 datasheet down-
loadable in PDF form from
www.crownhill.co.uk

The Program

```
10 COLOUR_PAL
100 start_screen
110 init
120 setup_display_windows
130 GPS_data_init
140 data_for_sim
150 main_loop
160 STOP
1000 REMark ***********************************************************************************************
1010 DEFine PROCedure start_screen
1020 WINDOW#0;SCR_XLIM,SCR_YLIM,0,0:BORDER#0;2,0,1:PAPER#0;0:INK#0;7:CLS#0
1030 WINDOW#1;SCR_XLIM,SCR_YLIM,0,0:BORDER#1;2,0,1:PAPER#1;12:INK#1;1:CLS#1
1040 WINDOW#2;SCR_XLIM,SCR_YLIM,0,0:BORDER#2;2,0,1:PAPER#2;12:INK#2;1:CLS#2
1050 BANNER 1,(SCR_XLIM/2)-100,50,4,1,4,"QLToday GPS"
1060 INBANNER 1,20,100,1,4,1,4,"Input from GPS (R)eceiver or (F)ile :"
1070 IF in$<>"R" AND in$<>"r" AND in$<>"F" AND in$<>"f" THEN GO TO 1060
1080 IF in$=="f" THEN sim=1:AT#1;7,57:BANNER 1,20,100,4,1,4,"Input from GPS (R)eceiver or (F)ile : Input from
     file"
1090 IF in$=="r" THEN sim=0:AT#1;7,57:BANNER 1,20,100,4,1,4,"Input from GPS (R)eceiver or (F)ile : Input from
     receiver"
1100 INBANNER 1,20,150,1,4,1,4,"Show (O)rbits or (T)rack :"
1110 IF in$<>"O" AND in$<>"o" AND in$<>"T" AND in$<>"t" THEN GO TO 1100
1120 IF in$=="t" THEN ShowTrack%=1:BANNER 1,20,150,4,1,4,"Show (O)rbits or (T)rack : Show Track"
1130 IF in$=="o" THEN ShowTrack%=0:BANNER 1,20,150,4,1,4,"Show (O)rbits or (T)rack : Orbits"
1140 IF ShowTrack%=0 THEN INBANNER 1,20,200,1,4,1,4,"Show Orbits as (B)lobs or (L)ines :":ELSE GO TO 1180
1150 IF in$<>"B" AND in$<>"b" AND in$<>"L" AND in$<>"l" THEN GO TO 1140
1160 IF in$=="B" THEN Blobs%=1:BANNER 1,20,200,4,1,4,"Show Orbits as (B)lobs or (L)ines : Show Orbits as Blobs"
1170 IF in$=="L" THEN Blobs%=0:BANNER 1,20,200,4,1,4,"Show Orbits as (B)lobs or (L)ines : Show Orbits as Lines"
1180 IF sim=0:AT#1;13,20:INBANNER 1,20,250,1,4,1,4,"Save raw data from recevier (Y/N) :":ELSE GO TO 1260
1190 IF in$<>"Y" AND in$<>"y" AND in$<>"N" AND in$<>"n" THEN GO TO 1140
1200 IF in$=="y" THEN dtof=1:BANNER 1,20,250,4,1,4,"Save raw data from recevier (Y/N) : Saves raw receiver data"
1210 IF in$=="n" THEN dtof=0:BANNER 1,20,250,3,1,4,"Save raw data from recevier (Y/N) : Does NOT save receiver
     data"
1220 IF dtof=1:AT#1;15,20:INBANNER 1,20,300,28,3,1,4,"Enter raw data file name (e.g. win5_gps_sats_dat) :":ELSE
     GO TO 1260
1230 raw1$=in$
1240 BLOCK#1,970,25,20,300,12
1250 BANNER 1,20,300,4,1,4,"Data from receiver will be sent to file :":BANNER 1,680,300,4,7,4,raw1$
1260 IF sim=0:AT#1;17,20:INBANNER 1,20,350,1,4,1,4,"Serial Port GPS Receiver connected to (1-6) :":ELSE GO TO 1310
1270 SerPort%=in$
1280 IF SerPort%<1 AND SerPort%>6 THEN GO TO 1260
1290 BLOCK#1,800,25,20,350,12
1300 ser$=SerPort%:BANNER 1,20,350,4,1,4,"Receiver connected to serial port :": BANNER 1,593,350,4,1,4,ser$
1310 IF sim=1:INBANNER 1,20,400,28,3,1,4,"Enter raw data file name (e.g. win5_gps_sats_dat) :":ELSE GO TO 1370
1320 raw2$=in$
1330 BLOCK#1,970,25,20,400,12
1340 BANNER 1,20,400,4,1,4,"Data will come from file :":BANNER 1,450,400,4,7,4,raw2$
1350 REMark Delay in seconds between readings
1360 REMark to avoid enormous sats_data file
1370 INBANNER 1,20,450,1,4,1,4,"Delay between reading receiver data in seconds "
1380 delay=in$
```

```
1390 BANNER 1,773,450,4,1,4,delay
1400 INBANNER 1,20,500,1,4,1,4,"Confirm these settings are correct (Y/N)"
1410 IF in$<>"Y" AND in$<>"y" AND in$<>"N" AND in$<>"n" THEN GO TO 1400
1420 IF in$=="n" THEN GO TO 1020
1430 END DEFine start_screen
1440 REMark ***********************************************************************************
1450 DEFine PROCedure BANNER(Ch%,Xx%,Yy%,Sz%,Ink%,Pap%,f$)
1460  LOCal l%,X%,Y%,W%,H%
1470  l%=LEN(f$)
1480 SELect ON Sz%
1490  =1:W%=7*(l%+1):H%=19
1500  =2:W%=8*(l%+1):H%=19
1510  =3:W%=12*(l%+1):H%=19
1520  =4:W%=16*(l%+1):H%=19
1530  =5:W%=7*(l%+1):H%=30
1540  =6:W%=8*(l%+1):H%=30
1550  =7:W%=12*(l%+1):H%=30
1560  =8:W%=16*(l%+1):H%=30
1570 END SELect
1580  IF Xx%<0 THEN X%=(512-W%)/2:ELSE X%=Xx%:END IF
1590  IF Yy%<0 THEN Y%=(256-H%)/2:ELSE Y%=Yy%:END IF
1600  BLOCK#Ch%;W%,H%,X%+6,Y%+4,0
1610  BLOCK#Ch%;W%,H%,X%,Y%,0
1620  BANNER_TXT Ch%,Xx%,Yy%,Sz%,Ink%,Pap%,f$
1630 END DEFine BANNER
1640 REMark ***********************************************************************************
1650 DEFine PROCedure BANNER_TXT(Ch%,Xx%,Yy%,Sz%,Ink%,Pap%,f$)
1660  LOCal l%,X%,Y%,W%,H%
1670  l%=LEN(f$)
1680 SELect ON Sz%
1690  =1:W%=7*(l%+1):H%=19:CSIZE#Ch%;0,0
1700  =2:W%=8*(l%+1):H%=19:CSIZE#Ch%;1,0
1710  =3:W%=12*(l%+1):H%=19:CSIZE#Ch%;2,0
1720  =4:W%=16*(l%+1):H%=19:CSIZE#Ch%;3,0
1730  =5:W%=7*(l%+1):H%=30:CSIZE#Ch%;0,1
1740  =6:W%=8*(l%+1):H%=30:CSIZE#Ch%;1,1
1750  =7:W%=12*(l%+1):H%=30:CSIZE#Ch%;2,1
1760  =8:W%=16*(l%+1):H%=30:CSIZE#Ch%;3,1
1770 END SELect
1780  IF Xx%<0 THEN X%=(512-W%)/2:ELSE X%=Xx%:END IF
1790  IF Yy%<0 THEN Y%=(256-H%)/2:ELSE Y%=Yy%:END IF
1800  BLOCK#Ch%;W%-4,H%-2,X%+2,Y%+1,Pap%
1810  OVER#Ch%;1:INK#Ch%;0
1820  CURSOR#Ch%;X%+5,Y%+4:PRINT#Ch%;f$;
1830  CURSOR#Ch%;X%+7,Y%+4:PRINT#Ch%;f$;
1840  CURSOR#Ch%;X%+5,Y%+6:PRINT#Ch%;f$;
1850  CURSOR#Ch%;X%+7,Y%+6:PRINT#Ch%;f$;
1860  INK#Ch%;Ink%
1870  CURSOR#Ch%;X%+6,Y%+5:PRINT#Ch%;f$;
1880 END DEFine BANNER_TXT
1890 REMark ***********************************************************************************
1900 DEFine PROCedure INBANNER(Ch%,Xx%,Yy%,Ex%,Sz%,Ink%,Pap%,f$)
1910  LOCal l%,X%,Y%,W%,H%
1920  l%=LEN(f$)
1930 SELect ON Sz%
1940  =1:W%=7*(l%+1+Ex%):H%=19
1950  =2:W%=8*(l%+1+Ex%):H%=19
1960  =3:W%=12*(l%+1+Ex%):H%=19
1970  =4:W%=16*(l%+1+Ex%):H%=19
1980  =5:W%=7*(l%+1+Ex%):H%=30
1990  =6:W%=8*(l%+1+Ex%):H%=30
2000  =7:W%=12*(l%+1+Ex%):H%=30
2010  =8:W%=16*(l%+1+Ex%):H%=30
2020 END SELect
2030  IF Xx%<0 THEN X%=(512-W%)/2:ELSE X%=Xx%:END IF
2040  IF Yy%<0 THEN Y%=(256-H%)/2:ELSE Y%=Yy%:END IF
2050  BLOCK#Ch%;W%,H%,X%+6,Y%+4,0
2060  BLOCK#Ch%;W%,H%,X%,Y%,0
2070  INBANNER_TXT Ch%,Xx%,Yy%,Ex%,Sz%,Ink%,Pap%,f$
2080 END DEFine INBANNER
2090 REMark ***********************************************************************************
2100 DEFine PROCedure INBANNER_TXT(Ch%,Xx%,Yy%,Ex%,Sz%,Ink%,Pap%,f$)
2110  LOCal l%,X%,Y%,W%,H%
```

```
2120  l%=LEN(f$)
2130  SELect ON Sz%
2140   =1:W%=7*(l%+1+Ex%):H%=19:CSIZE#Ch%;0,0
2150   =2:W%=8*(l%+1+Ex%):H%=19:CSIZE#Ch%;1,0
2160   =3:W%=12*(l%+1+Ex%):H%=19:CSIZE#Ch%;2,0
2170   =4:W%=16*(l%+1+Ex%):H%=19:CSIZE#Ch%;3,0
2180   =5:W%=7*(l%+1+Ex%):H%=30:CSIZE#Ch%;0,1
2190   =6:W%=8*(l%+1+Ex%):H%=30:CSIZE#Ch%;1,1
2200   =7:W%=12*(l%+1+Ex%):H%=30:CSIZE#Ch%;2,1
2210   =8:W%=16*(l%+1+Ex%):H%=30:CSIZE#Ch%;3,1
2220  END SELect
2230   IF Xx%<0 THEN X%=(512-W%)/2:ELSE X%=Xx%:END IF
2240   IF Yy%<0 THEN Y%=(256-H%)/2:ELSE Y%=Yy%:END IF
2250   BLOCK#Ch%;W%-4,H%-2,X%+2,Y%+1,Pap%
2260   OVER#Ch%;1:INK#Ch%;0
2270   CURSOR#Ch%;X%+5,Y%+4:PRINT#Ch%;f$;
2280   CURSOR#Ch%;X%+7,Y%+4:PRINT#Ch%;f$;
2290   CURSOR#Ch%;X%+5,Y%+6:PRINT#Ch%;f$;
2300   CURSOR#Ch%;X%+7,Y%+6:PRINT#Ch%;f$;
2310   INK#Ch%;Ink%
2320   CURSOR#Ch%;X%+6,Y%+5:PRINT#Ch%;f$;
2330  SELect ON Sz%
2340   =1:=5:CURSOR#Ch%;X%+6+(l%*6),Y%+4
2350   =2:=6:CURSOR#Ch%;X%+6+(l%*8),Y%+4
2360   =3:=7:CURSOR#Ch%;X%+6+(l%*12),Y%+4
2370   =4:=8:CURSOR#Ch%;X%+6+(l%*16),Y%+4
2380  END SELect
2390  INK#Ch%;1:INPUT#Ch%;in$
2400  END DEFine INBANNER_TXT
2410  REMark ********************************************************************************************
2420  DEFine PROCedure init
2430  maxid=30:REMark highest permitted satellite id no.
2440  :
2450  IF ShowTrack%>0 THEN
2460  Minlon=0:Minlet=0:Maxlon=0:Maxlat=0
2470  REMark PRINT "Minlon:";Minlon;" Minlat:";Minlat;" Maxlon:";Maxlon;" Maxlat:";Maxlat
2480  REMark For Displaying track, must set min and max
2490  REMark lat and lon or call a procedure to do so ...
2500  ChiCityMap: REMark May need user input here for required area to be covered.
2510  REMark PfdMap
2520  :
2530  REMark See Jan Jones page 39,40
2540  IF (1+Minlon+Minlat+Maxlon+Maxlat)=1 THEN
2550  CLS
2560  PRINT \\\"   ** Map limits not set ***":STOP
2570  END IF
2580  END IF
2590  :
2600  REMark For orbit display
2610  REMark Colours used for spot showing first observed
2620  REMark position and use of satellite
2630  seentint%=194:usdtint%=96
2640  :
2650  CLS#0:CLS#1
2660  CSIZE#1;0,0
2670  :
2680  set_serial_port
2690  END DEFine init
2700  REMark ********************************************************************************************
2710  REMark Follow a series of definitions of charts for tracks
2720  REMark Maxlon necessary for lat, lon grid
2730  DEFine PROCedure ChiCityMap
2740  Minlat=50+49/60
2750  Maxlat=50+51/60
2760  Minlon=-47/60
2770  Maxlon=-43/60
2780  END DEFine ChiCityMap
2790  REMark ********************************************************************************************
2800  DEFine PROCedure PfdMap
2810  Minlat=50.7667
2820  Maxlat=51.05
2830  Minlon=-1-3/60
2840  Maxlon=-.6
```

```
2850 END DEFine PfdMap
2860 REMark ************************************************************************************
2870 DEFine PROCedure set_serial_port
2880 REMark Set up the Serial Port if needed
2890 IF sim THEN
2900 REMark If sim=1(true)
2910 REMark Serial Port simulated by data file
2920 cs%=FOP_IN(raw2$)
2930 :
2940 ELSE
2950 REMark Otherwise real time data from receiver
2960 REMark SerPort% set to 1 to 6 as selected by the user in the Start_Screen procedure
2970 BAUD SerPort%,4800
2980 SerPort$=SerPort%
2990 cs%=FOPEN("srx"&SerPort$&"IA"): REMark I=Ignore flow control, A=<CR><LF> is end of line, <CR><FF> is end of page
3000 END IF
3010 END DEFine set_serial_port
3020 REMark ************************************************************************************
3030 DEFine PROCedure setup_display_windows
3040 REMark Window to display raw data
3050 dd%=FOPEN("con")
3060 CURSOR 0,350
3070 PRINT "Raw incoming data"
3080 WINDOW#dd%,550,75,0,365
3090 BORDER#dd,1,9,1
3100 PAPER#dd%,36:INK#dd%,0:CLS#dd%
3110 :
3120 REMark Windowto display error and other messages
3130 REMark in particular, corrupted data
3140 de%=FOPEN("con")
3150 CURSOR 0,440
3160 PRINT "Error and Other messages"
3170 WINDOW#de%,400,75,0,455
3180 BORDER#de%,1,9,1
3190 PAPER#de%,39:INK#de%,0:CLS#de%:REMark paper was 36
3200 :
3210 REMark Window for main display of orbits or track
3220 asprat=.8:REMark aspect ratio: width/height
3230 size=3.5:REMark for early fiddling with windows
3240 dc%=FOPEN("con")
3250 Mctr=COS(RAD((Minlat+Maxlat)/2))
3260 High=100*size
3270 wide=137*size*asprat
3280 WINDOW#dc%,wide,High,0,0
3290 BORDER#dc%,1,9,1
3300 INK#dc%,0
3310 PAPER#dc%,37:CLS#dc%
3320 :
3330 REMark Set up for track display
3340 IF ShowTrack%<>0 THEN
3350 difflon=Maxlon-Minlon
3360 difflat=Maxlat-Minlat
3370 SCALE#dc%,difflat,Minlat*asprat*Mctr,Minlat
3380 :
3390 REMark Lat and Lon grid
3400 LatLonGrid
3410 :
3420 REMark Window to show instantaneous track and speed
3430 dt%=FOPEN("scr")
3440 Topdc%=3
3450 WINDOW#dt%,137/4*size*asprat,100/4*size,280,Topdc%
3460 BORDER#dt%,1,9,1
3470 SCALE#dt%,200,-100*asprat,-100
3480 PAPER#dt%,36:CLS#dt%
3490 ELSE
3500 REMark For orbit display
3510 SCALE#dc%,2.2,-1.1*asprat,-1.1
3520 REMark set up alternative for orbits
3530 SatSky
3540 END IF
3550 :
3560 REMark Window to show speed, bearing, validity etc.
3570 ds%=FOPEN("con")
```

```
3580 WINDOW#ds%,305,350,388,0
3590 BORDER#ds%,1,9,1
3600 PAPER#ds%,36:CLS#ds%
3610 :
3620 REMark Window to show satellite signal data
3630 dn%=FOPEN("scr")
3640 WINDOW#dn%,320,350,697,0
3650 BORDER#dn%;1,9,1
3660 PAPER#dn%,36:CLS#dn%
3670 INK#dn%;0
3680 AT#dn%;2,2:PRINT#dn%;"Signal Strength"
3690 AT#dn%;4,2:PRINT#dn%;"50"
3700 AT#dn%;9,2:PRINT#dn%;"40"
3710 AT#dn%;14,2:PRINT#dn%;"30"
3720 AT#dn%;19,2:PRINT#dn%;"20"
3730 AT#dn%;24,2:PRINT#dn%;"10"
3740 AT#dn%;29,2:PRINT#dn%;"00"
3750 AT#dn%;31,2:PRINT#dn%;"ID"
3760 BLOCK#dn%;3,40,17,50,2
3770 BLOCK#dn%;3,40,17,100,4
3780 BLOCK#dn%;3,40,17,150,3
3790 BLOCK#dn%;3,40,17,200,6
3800 BLOCK#dn%;3,40,17,250,0
3810 BLOCK#dn%;290,3,17,303,0
3820 DIM peak%(12):REMark area to store peak signal strength.
3830 DIM pht%(12):REMark area to store loop count before reseting peak hold to current level
3840 END DEFine setup_display_windows
3850 REMark ***************************************************************************************
3860 :
3870 DEFine PROCedure LatLonGrid
3880 REMark For track, prints a grid of lats and longs
3890 REMark .. each at one minute of acr intervals
3900 REMark parameters set in main program
3910 REMark No need for precise match to window as SB
3920 REMark just doesn't draw outside it
3930 LOCal Glat, Glon, Gld,Glm
3940 INK#dc%,13:REMark nice pale gray
3950 :
3960 REMark Start with latitudes
3970 Gl=Minlat
3980 REMark need to convert to decimal degrees
3990 Gl=INT(Gl)+(INT((Gl-INT(Gl))*60))/60
4000 Gminl=Minlon*asprat*Mctr:Gmaxl=Maxlon*asprat*Mctr
4010 REPeat LatLines
4020 IF Minlat<=Gl AND Maxlat>Gl THEN
4030 LINE#dc%,Gminl,Gl TO Gmaxl,Gl
4040 END IF
4050 Gl=Gl+1/60
4060 IF Gl>Maxlat THEN EXIT LatLines
4070 END REPeat
4080 :
4090 REMark next meridians
4100 Gl=Minlon
4110 Gl=INT(Gl)+(INT((Gl-INT(Gl))*60))/60
4120 Gminl=Minlon:Gmaxl=Maxlon
4130 REPeat LonLines
4140 IF Minlon<=Gl AND Maxlon>Gl THEN
4150 Gp=Gl*asprat*Mctr
4160 LINE#dc%,Gp,Minlat TO Gp,Maxlat
4170 END IF
4180 Gl=Gl+1/60
4190 IF Gl>Maxlon THEN EXIT LonLines
4200 END REPeat
4210 END DEFine LatLonGrid
4220 REMark ***************************************************************************************
4230 DEFine PROCedure SatSky
4240 REMark Sky disk
4250 FILL#dc%,1
4260 INK#dc%,29
4270 ELLIPSE#dc%,0,0,1,1*asprat,0
4280 FILL#dc%,0
4290 :
4300 REMark Draw polar plot grid lines
```

```
4310 INK#dc%,12
4320 radials:REMark draw the bearings
4330 REMark Now draw the elevations
4340 FOR i=1 TO 3
4350 ELLIPSE#dc%,0,0,1/3,1*asprat,0
4360 END FOR
4370 LINE#dc%,-1.02*asprat,0 TO 1.02*asprat,0
4380 LINE#dc%,0,-1.02 TO 0,1.02
4390 :
4400 REMark Mark point of compass
4410 INK#dc%,9
4420 CURSOR#dc%,1.03*asprat,0,0,-4
4430 PRINT#dc%,"E"
4440 CURSOR#dc%,-1.03*asprat,0,-6,-4
4450 PRINT#dc%,"W"
4460 CURSOR#dc%,0,1.04,-3,-8
4470 PRINT#dc%,"N"
4480 CURSOR#dc%,0,-1.03,-3,2
4490 PRINT#dc%,"S"
4500 :
4510 REMark Mark azimuth scale
4520 FOR i=30 TO 330 STEP 30
4530 IF (i MOD 90)=0 THEN NEXT i
4540 j=i+90
4550 CURSOR#dc%,1.03*COS(j*PI/180)*asprat,1.03*SIN(j*PI/180),-6,-5
4560 PRINT#dc%,360-i
4570 END FOR i
4580 :
4590 REMark mark elevation scale
4600 FOR i=0 TO 3
4610 CURSOR#dc%,0,i/3,-6,-5
4620 PRINT#dc%,90-30*i
4630 END FOR i
4640 END DEFine SatSky
4650 REMark ************************************************************************************************
4660 DEFine PROCedure radials
4670 REMark Draws the celestial meridians at 30 deg intervals
4680 REMark as a series od dots to avoid to dark a line
4690 LOCal i,j,interval
4700 interval=2E-2
4710 FOR i=0 TO 350 STEP 10
4720 FOR j=2 TO 100
4730 REMark uses j*interval as a radial distance ..
4740 REMark .. which must be converted to x,y for plot
4750 IF j*interval>1 THEN EXIT j
4760 POINT#dc%,j*interval*COS(i*PI/180)*asprat,j*interval*SIN(i*PI/180)
4770 END FOR j
4780 END FOR i
4790 END DEFine radials
4800 REMark ************************************************************************************************
4810 DEFine PROCedure GPS_data_init
4820 :
4830 REMark Display now set up, now get ready for GPS data:
4840 :
4850 REMark Array to store the raw data lines from the reciever
4860 DIM rawdata$(6,128):REMark some receivers may issue more lines, so increase this array as required
4870 REMark Array to store satellite data..
4880 REMark with: IdNo, Bearing, Elevation, Usage
4890 REMark where: usage is 0 for not used, 1 for used
4900 DIM satvis(12,3):REMark Allow for 12 satellites
4910 :
4920 DIM satsusd(12):REMark List of Ids for satellites used:
4930 :
4940 REMark I use copies of the raw data...
4950 DIM satlist$(6,128):REMark Satellite data from $GPSGV input
4960 REMark Allowed for 7 $GPSGV lines (OTT - never more than 2 !), Not quiet true, is dependant on receiver, some
     issue 3 $GPSGSV lines.
4970 :
4980 DIM rmcdata$(128):REMark Lat,Long,Time
4990 :
5000 REMark Posns for orbits plotted as lines
5010 REMark to draw a blob for first point, then a line
5020 REMark Store: Old x,y;New x,y:5th item, )=new orbit...
```

```
5030 REMark .. so draw blob, 1=orbit started so draw line
5040 DIM posns(maxid,5):REMark need enough for each satellite, maxid set in line 2410, default maxid=30
5050 REMark set all to zero for a start
5060 FOR i%=0 TO maxid-1
5070 FOR j%=0 TO 4
5080 posns(i%,j%)=0
5090 END FOR j%
5100 END FOR i%
5110 :
5120 REMark For plotting trach, need a point to start
5130 REMark then continue with lines.
5140 REMark Don't bother not defining this if orbits
5150 FirstPt%=0
5160 :
5170 Lines=0:REMark A count of input lines
5180 GoodLines=0:REMark Another count of input lines
5190 CLS#dd%:REMark I needed this for raw data display
5200 END DEFine GPS_data_init
5210 REMark ************************************************************************************************
5220 DEFine PROCedure data_for_sim
5230 REMark Open a file to collect the data from the receiver for simulation
5240 IF dtof<>0 THEN
5250 fc%=FOP_NEW(raw1$)
5260 END IF
5270 END DEFine data_for_sim
5280 REMark ************************************************************************************************
5290 DEFine PROCedure main_loop
5300 REMark Setting up complete, now for ...
5310 REMark ... data reading and display
5320 :
5330 REMark Repeat loop for continous display
5340 REMark delay at end
5350 REMark Each run through loop deals with a single set
5360 REMark of data sentences, 5 to 7 depending on incoming data stream, starting
5370 REMark with a $GPGGA. Sent each second, but read
5380 REMark at a rate determined by missing some with the delay
5390 REMark Test for $GPVTG sentence present or not, WD-G-ZX4120 module has this sentence, but the RF Solutions
     development card does not.
5400 test_receiver_sentences
5410 :
5420 REPeat orbits
5430 AT#dd%;6,0:PRINT#dd%;"                                                                          "
5440 AT#dd%,0,0:AT#ds%;0,0:REMark To keep the display tidy
5450 REMark I read all the sentences at one go so that I
5460 REMark don't end up with some from a later second's lot.
5470 rawdata$(0)=gpsdata$("$GPGGA"):REMark wait for a first, GPS fix data
5480 rawdata$(1)=gpsdata$("$GPGSA"):REMark read the rest, GNSS DOP and active satellites
5490 rawdata$(2)=gpsdata$("$GPGSV"):REMark Satellites in view
5500 nummes=rawdata$(2,8)
5510 rawdata$(3)=gpsdata$("$GPGSV"):REMark Satellites in view
5520 rawdata$(4)="$GPGSV,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,*"
5530 IF nummes=3 THEN rawdata$(4)=gpsdata$("$GPGSV"):REMark Satellites in view
5540 rawdata$(5)=gpsdata$("$GPRMC"):REMark Recommended minimum specific GNSS data
5550 IF VTG%=1:rawdata$(6)=gpsdata$("$GPVTG"):REMark Velocity and track over ground
5560 IF VTG%=1 THEN Lines=Lines+6:ELSE Lines=Lines+5:REMark lines, Goodlines bit messy ...
5570 REMark ... intended it to help look at corrupted data
5580 REMark Check lines for not corrupted data
5590 IF VTG%=1 THEN t=6:ELSE t=5
5600 FOR i=0 TO t
5610 IF i=4 AND nummes<>3 THEN NEXT i
5620 REMark Go through data to look for corrupted lines
5630 REMark This became a long winded process so that is
5640 REMark why I read all the sentences in one go.
5650 REMark Ignoring all the set of data. If there is one
5660 REMark corrupted item, is a bit OTT, but safe.
5670 :
5680 REMark Sometimes get lines much longer than spec..
5690 REMark .. 'Long' lines seem to be a normal line but..
5700 REMark .. no <CR><LF> and followed by more,..
5710 REMark .. badly formed, data, so ignore them :
5720 ChkFld%='*' INSTR rawdata$(i)
5730 REMark IF LEN(rawdata$(i))>ChkFld%+3 THEN NEXT orbits
5740 :
```

```
5750 IF dtof<>0 THEN
5760 PRINT#fc%,rawdata$(i):REMark Save in file if needed
5770 END IF
5780 :
5790 REMark Check 'Checksum' field
5800 Check%=CheckSum(rawdata$(i))
5810 IF Check%<>0 THEN
5820 NEXT orbits
5830 END IF
5840 GoodLines=GoodLines+1
5850 DisLine dd%,GoodLines&" "&rawdata$(i),80
5860 END FOR i
5870 :
5880 REMark Get ready for GPS fix data
5890 REMark from GPGGA data line, not used in Hugh's orginal program, some data duplicated in GPRMC data line.
5900 gpsfix$=rawdata$(0)
5910 Extract_gpgga_data
5920 :
5930 REMark Get ready for list of sateliites used
5940 REMark from $GPGSA data line
5950 gpgsa$=rawdata$(1):REMark cautiously us copies
5960 Extract_GPGSA_data
5970 :
5980 REMark Get ready for list of satellite data
5990 REMark First $GPGSV lines gives no of $GPSV lines
6000 satlist$(1)=rawdata$(2)
6010 Extract_GPGSV1_data
6020 REMark Extract number of $GPGSV lines
6030 novrecs%=numsatview1$
6040 :
6050 REMark Extracting the data from the second $GPGSV sentence
6060 satlist$(2)=rawdata$(3)
6070 Extract_GPGSV2_data:
6080 :
6090 REMark Extracting the data from the third $GPGSV which a dummy setence when not present in the data stream.
6100 satlist$(3)=rawdata$(4)
6110 Extract_GPGSV3_data
6120 :
6130 REMark Copy RMC data
6140 gpsrmc$=rawdata$(5)
6150 Extract_GPSRMC_data
6160 :
6170 REMark Copy VTG data, if present
6180 gpvtg$=rawdata$(6)
6190 REMark if VTG%=1 then Extract_GPVTG_data
6200 :
6210 display_data
6220 END REPeat orbits
6230 END DEFine main_loop
6240 REMark ****************************************************************************************
6250 DEFine PROCedure test_receiver_sentences
6260 VTG%=0:rawdata$(5)="                                    "
6270 FOR ii=0 TO 7
6280 IF EOF(#cs%) THEN
6290 PRINT "End of File"
6300 CLS#1:CLS#0:CLS#2:CLOSE:STOP
6310 END IF
6320 INPUT#cs%;t$
6330 IF t$(1 TO 6)="$GPVTG" THEN VTG%=1
6340 END FOR ii
6350 END DEFine test_receiver_sentences
6360 REMark ****************************************************************************************
6370 DEFine FuNction gpsdata$(id$)
6380 REMark Waits for and reads a sentence of data starting
6390 REMark with the string id$ (not sat id this time)
6400 REMark Give up if there's no data to serial port
6410 FOR i=1 TO 50
6420 IF EOF(#cs%) THEN
6430 AT#ds%;30,3:PRINT#ds%;"Lines: ";Lines!;
6440 PRINT#ds%;" Good Lines: ";GoodLines
6450 INPUT#ds%;"   Press <enter> to finish: ";t$
6460 CLS#1:CLS#0:CLS#2:CLOSE:STOP
6470 END IF
```

```
6480 INPUT#cs%,t$
6490 REMark More check for dodgy data
6500 IF LEN(t$)=0 THEN NEXT i
6510 IF t$(1)<>"$" THEN NEXT i
6520 IF t$(1 TO 6)=id$ THEN RETurn t$:
6530 END FOR
6540 IF i>10 THEN PRINT#ds%;" No GPS data":STOP
6550 END DEFine gpsdata$
6560 REMark ***********************************************************************************************
6570 DEFine FuNction CheckSum(a$)
6580 LOCal i,aa$,ChkSum,ChkCode$
6590 IF LEN(a$)=0 THEN RETurn -2
6600 FOR i=1 TO 256:REMark Allow for sentence..
6610 REMark .. not terminated properly, i.e. no '*'
6620 aa$=a$(i)
6630 SELect ON CODE(aa$)
6640 REMark set ChkSum to zros at start of sentence
6650 =CODE('$'):ChkSum=0
6660 =CODE('*'):
6670 ChkCode$=a$((i+1) TO (i+2))
6680 EXIT i
6690 =REMAINDER :
6700 REMark ^^ is 'bit-wise exclusive OR' Jan Jones p 40
6710 ChkSum=CODE(aa$)^^ChkSum
6720 END SELect
6730 END FOR i
6740 REMark Checksum is data is two hex chars (8 bits)
6750 IF HEX$(ChkSum,8)=ChkCode$ THEN
6760 RETurn 0: REMark Good result
6770 ELSE
6780 REMark Bad result
6790 PRINT#de%,a$;" ChkSum: ";HEX$(ChkSum,8);" Check code: ";ChkCode$
6800 RETurn -1
6810 END IF
6820 END DEFine CheckSum
6830 REMark ***********************************************************************************************
6840 DEFine PROCedure DisLine(c%,t$,l%)
6850 REMark Displays line padded to l% chars with spaces ..
6860 REMark .. in channel #c%, raw data window, the spaces are needed
6870 REMark when short lines follow long
6880 REMark Had no success with cls so far
6890 PRINT#c%;t$;
6900 tl%=LEN(t$)
6910 IF tl%<l% THEN
6920 PRINT#c%;FILL$(" ",l%-tl%)
6930 ELSE PRINT #c%
6940 END IF
6950 END DEFine DisLine
6960 REMark ***********************************************************************************************
6970 DEFine PROCedure Extract_gpgga_data
6980 REMark test line:CLS:PRINT gpsfix$
6990 gpsfix$=chop$(gpsfix$,1)
7000 Time1$=field$(gpsfix$)
7010 gpsfix$=chop$(gpsfix$,1)
7020 Latitude$=field$(gpsfix$)
7030 gpsfix$=chop$(gpsfix$,1)
7040 NSIndicator$=field$(gpsfix$)
7050 gpsfix$=chop$(gpsfix$,1)
7060 Longitude$=field$(gpsfix$)
7070 gpsfix$=chop$(gpsfix$,1)
7080 EWIndicator$=field$(gpsfix$)
7090 gpsfix$=chop$(gpsfix$,1)
7100 PosFix1$=field$(gpsfix$)
7110 gpsfix$=chop$(gpsfix$,1)
7120 Sats$=field$(gpsfix$)
7130 gpsfix$=chop$(gpsfix$,1)
7140 HDP$=field$(gpsfix$)
7150 gpsfix$=chop$(gpsfix$,1)
7160 Altitude$=field$(gpsfix$)
7170 gpsfix$=chop$(gpsfix$,1)
7180 Meter1$=field$(gpsfix$)
7190 gpsfix$=chop$(gpsfix$,1)
7200 Geoid$=field$(gpsfix$)
```

```
7210 gpsfix$=chop$(gpsfix$,1)
7220 Meter2$=field$(gpsfix$)
7230 gpsfix$=chop$(gpsfix$,1)
7240 AoD$=field$(gpsfix$)
7250 REMark Test Line:PRINT Time$:PRINT Latitude$:PRINT NSIndicator$:PRINT Longitude$:PRINT EWIndicator$:PRINT
     PosFix1$:PRINT Sats$:PRINT HDP$:PRINT Altitude$:PRINT Meter1$:PRINT Geoid$:PRINT Meter2$:PRINT AoD$:CLOSE:STOP
7260 END DEFine Extract_gpgga_data
7270 REMark ***************************************************************************************
7280 DEFine PROCedure Extract_GPGSA_data
7290 REMark Test Line:CLS:PRINT:PRINT gpgsa$
7300 gpgsa$=chop$(gpgsa$,1)
7310 mode2$=field$(gpgsa$)
7320 gpgsa$=chop$(gpgsa$,1)
7330 Mode3$=field$(gpgsa$)
7340 gpgsa$=chop$(gpgsa$,1)
7350 SU1$=field$(gpgsa$)
7360 gpgsa$=chop$(gpgsa$,1)
7370 SU2$=field$(gpgsa$)
7380 gpgsa$=chop$(gpgsa$,1)
7390 SU3$=field$(gpgsa$)
7400 gpgsa$=chop$(gpgsa$,1)
7410 SU4$=field$(gpgsa$)
7420 gpgsa$=chop$(gpgsa$,1)
7430 SU5$=field$(gpgsa$)
7440 gpgsa$=chop$(gpgsa$,1)
7450 SU6$=field$(gpgsa$)
7460 gpgsa$=chop$(gpgsa$,1)
7470 SU7$=field$(gpgsa$)
7480 gpgsa$=chop$(gpgsa$,1)
7490 SU8$=field$(gpgsa$)
7500 gpgsa$=chop$(gpgsa$,1)
7510 SU9$=field$(gpgsa$)
7520 gpgsa$=chop$(gpgsa$,1)
7530 SU10$=field$(gpgsa$)
7540 gpgsa$=chop$(gpgsa$,1)
7550 SU11$=field$(gpgsa$)
7560 gpgsa$=chop$(gpgsa$,1)
7570 SU12$=field$(gpgsa$)
7580 gpgsa$=chop$(gpgsa$,1)
7590 PDOP$=field$(gpgsa$)
7600 gpgsa$=chop$(gpgsa$,1)
7610 HDOP$=field$(gpgsa$)
7620 gpgsa$=chop$(gpgsa$,1)
7630 VDOP$=field$(gpgsa$)
7640 REMark Test Line:PRINT mode2$:PRINT Mode3$:PRINT SU1$:PRINT SU2$:PRINT SU3$:PRINT SU4$:PRINT SU5$:PRINT
     SU6$:PRINT SU7$:PRINT SU8$:PRINT SU9$:PRINT SU10$:PRINT SU11$:PRINT SU12$:PRINT PDOP$:PRINT HDOP$:PRINT
     VDOP$:CLOSE:STOP
7650 END DEFine Extract_GPGSA_data
7660 REMark ***************************************************************************************
7670 DEFine PROCedure Extract_GPSRMC_data
7680 REMark Test LineCLS:PRINT gpsrmc$
7690 gpsrmc$=chop$(gpsrmc$,1)
7700 Time2$=field$(gpsrmc$)
7710 gpsrmc$=chop$(gpsrmc$,1)
7720 Status$=field$(gpsrmc$)
7730 gpsrmc$=chop$(gpsrmc$,1)
7740 Latitude2$=field$(gpsrmc$)
7750 gpsrmc$=chop$(gpsrmc$,1)
7760 NSindicator2$=field$(gpsrmc$)
7770 gpsrmc$=chop$(gpsrmc$,1)
7780 Longitude2$=field$(gpsrmc$)
7790 gpsrmc$=chop$(gpsrmc$,1)
7800 EWIndicator2$=field$(gpsrmc$)
7810 gpsrmc$=chop$(gpsrmc$,1)
7820 SOG$=field$(gpsrmc$)
7830 gpsrmc$=chop$(gpsrmc$,1)
7840 COG$=field$(gpsrmc$)
7850 gpsrmc$=chop$(gpsrmc$,1)
7860 SatDate$=field$(gpsrmc$)
7870 REMark Test Line:PRINT Time2$:PRINT Status$:PRINT Latitude2$:PRINT NSindicator2$:PRINT Longitude2$:PRINT
     EWIndicator2$:PRINT SOG$:PRINT COG$:PRINT SatDate$:CLOSE:STOP
7880 END DEFine Extract_GPSRMC_data
7890 REMark ***************************************************************************************
```

```
7900 DEFine PROCedure Extract_GPVTG_data
7910 REMark test line:CLS:PRINT gpvtg$
7920 gpvtg$=chop$(gpvtg$,1)
7930 Courset$=field$(gpvtg$)
7940 gpvtg$=chop$(gpvtg$,1)
7950 Ref1$=field$(gpvtg$)
7960 gpvtg$=chop$(gpvtg$,1)
7970 Coursem$=field$(gpvtg$)
7980 gpvtg$=chop$(gpvtg$,1)
7990 Ref2$=field$(gpvtg$)
8000 gpvtg$=chop$(gpvtg$,1)
8010 Speed1$=field$(gpvtg$)
8020 gpvtg$=chop$(gpvtg$,1)
8030 Unit1$=field$(gpvtg$)
8040 gpvtg$=chop$(gpvtg$,1)
8050 Speed2$=field$(gpvtg$)
8060 gpvtg$=chop$(gpvtg$,1)
8070 Unit2$=field$(gpvtg$)
8080 gpvtg$=chop$(gpvtg$,1)
8090 Mode3$=field$(gpvtg$)
8100 REMark test line:PRINT Courset$:PRINT Ref1$:PRINT Coursem$:PRINT Ref2$:PRINT Speed1$:PRINT Unit1$:PRINT
     Speed2$:PRINT Unit2$:PRINT Mode3$:CLOSE:STOP
8110 END DEFine Extract_GPVTG_data
8120 REMark ******************************************************************************************
8130 DEFine PROCedure Extract_GPGSV1_data
8140 REMark Test Line:CLS:PRINT satlist$(1)
8150 satlist$(1)=chop$(satlist$(1),1)
8160 Nummes1$=field$(satlist$(1))
8170 satlist$(1)=chop$(satlist$(1),1)
8180 Mesnum1$=field$(satlist$(1))
8190 satlist$(1)=chop$(satlist$(1),1)
8200 numsatview1$=field$(satlist$(1))
8210 satlist$(1)=chop$(satlist$(1),1)
8220 satv1$=field$(satlist$(1))
8230 satlist$(1)=chop$(satlist$(1),1)
8240 Sate1$=field$(satlist$(1))
8250 satlist$(1)=chop$(satlist$(1),1)
8260 sata1$=field$(satlist$(1))
8270 satlist$(1)=chop$(satlist$(1),1)
8280 snr1$=field$(satlist$(1))
8290 satlist$(1)=chop$(satlist$(1),1)
8300 satv2$=field$(satlist$(1))
8310 satlist$(1)=chop$(satlist$(1),1)
8320 sate2$=field$(satlist$(1))
8330 satlist$(1)=chop$(satlist$(1),1)
8340 sata2$=field$(satlist$(1))
8350 satlist$(1)=chop$(satlist$(1),1)
8360 snr2$=field$(satlist$(1))
8370 satlist$(1)=chop$(satlist$(1),1)
8380 satv3$=field$(satlist$(1))
8390 satlist$(1)=chop$(satlist$(1),1)
8400 sate3$=field$(satlist$(1))
8410 satlist$(1)=chop$(satlist$(1),1)
8420 sata3$=field$(satlist$(1))
8430 satlist$(1)=chop$(satlist$(1),1)
8440 snr3$=field$(satlist$(1))
8450 satlist$(1)=chop$(satlist$(1),1)
8460 satv4$=field$(satlist$(1))
8470 satlist$(1)=chop$(satlist$(1),1)
8480 sate4$=field$(satlist$(1))
8490 satlist$(1)=chop$(satlist$(1),1)
8500 sata4$=field$(satlist$(1))
8510 satlist$(1)=chop$(satlist$(1),1)
8520 snr4$=field$(satlist$(1))
8530 REMark Test Line:PRINT Nummes1$:PRINT Mesnum1$:PRINT numsatview1$:PRINT satv1$:PRINT Sate1$:PRINT sata1$:PRINT
     snr1$:PRINT satv2$:PRINT sate2$:PRINT sata2$:PRINT snr2$:PRINT satv3$:PRINT sate3$:PRINT sata3$:PRINT snr3$:
     PRINT satv4$:PRINT sate4$:PRINT sata4$:PRINT snr4$:CLOSE:STOP
8540 END DEFine Extract_GPGSV1_data
8550 REMark ******************************************************************************************
8560 DEFine PROCedure Extract_GPGSV2_data
8570 REMark test line:AT 54,0:PRINT satlist$(2)
8580 satlist$(2)=chop$(satlist$(2),1)
8590 Nummes2$=field$(satlist$(2))
```

```
8600 satlist$(2)=chop$(satlist$(2),1)
8610 Mesnum2$=field$(satlist$(2))
8620 satlist$(2)=chop$(satlist$(2),1)
8630 numsatview2$=field$(satlist$(2))
8640 satlist$(2)=chop$(satlist$(2),1)
8650 satv5$=field$(satlist$(2))
8660 satlist$(2)=chop$(satlist$(2),1)
8670 Sate5$=field$(satlist$(2))
8680 satlist$(2)=chop$(satlist$(2),1)
8690 sata5$=field$(satlist$(2))
8700 satlist$(2)=chop$(satlist$(2),1)
8710 snr5$=field$(satlist$(2))
8720 satlist$(2)=chop$(satlist$(2),1)
8730 satv6$=field$(satlist$(2))
8740 satlist$(2)=chop$(satlist$(2),1)
8750 sate6$=field$(satlist$(2))
8760 satlist$(2)=chop$(satlist$(2),1)
8770 sata6$=field$(satlist$(2))
8780 satlist$(2)=chop$(satlist$(2),1)
8790 snr6$=field$(satlist$(2))
8800 satlist$(2)=chop$(satlist$(2),1)
8810 satv7$=field$(satlist$(2))
8820 satlist$(2)=chop$(satlist$(2),1)
8830 sate7$=field$(satlist$(2))
8840 satlist$(2)=chop$(satlist$(2),1)
8850 sata7$=field$(satlist$(2))
8860 satlist$(2)=chop$(satlist$(2),1)
8870 snr7$=field$(satlist$(2))
8880 satlist$(2)=chop$(satlist$(2),1)
8890 satv8$=field$(satlist$(2))
8900 satlist$(2)=chop$(satlist$(2),1)
8910 sate8$=field$(satlist$(2))
8920 satlist$(2)=chop$(satlist$(2),1)
8930 sata8$=field$(satlist$(2))
8940 satlist$(2)=chop$(satlist$(2),1)
8950 snr8$=field$(satlist$(2))
8960 REMark test line: AT 55,0:PRINT Nummes2$;" ";Mesnum2$;" ";numsatview2$;" ";satv5$;" ";Sate5$;" ";sata5$;"
     ";snr5$;" ";satv6$;" ";sate6$;" ";sata6$;" ";snr6$;" ";satv7$;" ";sate7$;" ";sata7$;" ";snr7$;" ";satv8$;"
     ";sate8$;" ";sata8$;" ";snr8$:REMark CLOSE:STOP
8970 END DEFine Extract_GPGSV2_data
8980 REMark *************************************************************************************************
8990 DEFine PROCedure Extract_GPGSV3_data
9000 REMark Test Line:CLS:PRINT satlist$(3)
9010 satlist$(3)=chop$(satlist$(3),1)
9020 Nummes3$=field$(satlist$(3))
9030 satlist$(3)=chop$(satlist$(3),1)
9040 Mesnum3$=field$(satlist$(3))
9050 satlist$(3)=chop$(satlist$(3),1)
9060 numsatview3$=field$(satlist$(3))
9070 satlist$(3)=chop$(satlist$(3),1)
9080 satv9$=field$(satlist$(3))
9090 satlist$(3)=chop$(satlist$(3),1)
9100 Sate9$=field$(satlist$(3))
9110 satlist$(3)=chop$(satlist$(3),1)
9120 sata9$=field$(satlist$(3))
9130 satlist$(3)=chop$(satlist$(3),1)
9140 snr9$=field$(satlist$(3))
9150 satlist$(3)=chop$(satlist$(3),1)
9160 satv10$=field$(satlist$(3))
9170 satlist$(3)=chop$(satlist$(3),1)
9180 sate10$=field$(satlist$(3))
9190 satlist$(3)=chop$(satlist$(3),1)
9200 sata10$=field$(satlist$(3))
9210 satlist$(3)=chop$(satlist$(3),1)
9220 snr10$=field$(satlist$(3))
9230 satlist$(3)=chop$(satlist$(3),1)
9240 satv11$=field$(satlist$(3))
9250 satlist$(3)=chop$(satlist$(3),1)
9260 sate11$=field$(satlist$(3))
9270 satlist$(3)=chop$(satlist$(3),1)
9280 sata11$=field$(satlist$(3))
9290 satlist$(3)=chop$(satlist$(3),1)
9300 snr11$=field$(satlist$(3))
```

```
9310 satlist$(3)=chop$(satlist$(3),1)
9320 satv12$=field$(satlist$(3))
9330 satlist$(3)=chop$(satlist$(3),1)
9340 sate12$=field$(satlist$(3))
9350 satlist$(3)=chop$(satlist$(3),1)
9360 sata12$=field$(satlist$(3))
9370 satlist$(3)=chop$(satlist$(3),1)
9380 snr12$=field$(satlist$(3))
9390 REMark Test Line:PRINT Nummes3$:PRINT Mesnum3$:PRINT numsatview3$:PRINT satv9$:PRINT Sate9$:PRINT sata9$:PRINT
     snr9$:PRINT satv10$:PRINT sate10$:PRINT sata10$:PRINT snr10$:PRINT satv11$:PRINT sate11$:PRINT sata11$:PRINT
     snr11$:PRINT satv12$:PRINT sate12$:PRINT sata12$:PRINT snr12$:CLOSE:STOP
9400 END DEFine Extract_GPGSV3_data
9410 REMark *******************************************************************************************
9420 DEFine PROCedure display_data
9430 AT#dd%,0,0:AT#ds%;0,0:INK#ds%;0:REMark To keep the display tidy
9440 REMark Now have all the data needed for display
9450 :
9460 REMark Extract satellites used into satsusd arrary
9470 REMark from $GPGSA line
9480 i=0:REMark Count for sused REPeat loop
9490 :
9500 REMark Process and format time and validity
9510 UTC$=GPSTime$(Time2$)
9520 Inv%=0:REMark to record invalid time and data
9530 IF Status$="V":Inv%=1
9540 :
9550 REMark Display sat data from GPGSA data
9560 PRINT#ds%;\" Sats used   : ";
9570 IF SU1$<>"" THEN satsusd(1)=SU1$:ELSE satsusd(1)=-1
9580 IF SU2$<>"" THEN satsusd(2)=SU2$:ELSE satsusd(2)=-1
9590 IF SU3$<>"" THEN satsusd(3)=SU3$:ELSE satsusd(3)=-1
9600 IF SU4$<>"" THEN satsusd(4)=SU4$:ELSE satsusd(4)=-1
9610 IF SU5$<>"" THEN satsusd(5)=SU5$:ELSE satsusd(5)=-1
9620 IF SU6$<>"" THEN satsusd(6)=SU6$:ELSE satsusd(6)=-1
9630 IF SU7$<>"" THEN satsusd(7)=SU7$:ELSE satsusd(7)=-1
9640 IF SU8$<>"" THEN satsusd(8)=SU8$:ELSE satsusd(8)=-1
9650 IF SU9$<>"" THEN satsusd(9)=SU9$:ELSE satsusd(9)=-1
9660 IF SU10$<>"" THEN satsusd(10)=SU10$:ELSE satsusd(10)=-1
9670 IF SU11$<>"" THEN satsusd(11)=SU11$:ELSE satsusd(11)=-1
9680 IF SU12$<>"" THEN satsusd(12)=SU12$:ELSE satsusd(12)=-1
9690 FOR i=1 TO 12
9700 IF satsusd(i)=-1 THEN EXIT i
9710 IF satsusd(i)<10 THEN PRINT#ds%;"0";
9720 PRINT#ds%; satsusd(i);" ";
9730 END FOR i
9740 :
9750 REMark Spaces at end of 'used' line for shorter overwrite
9760 PRINT#ds%;"       "
9770 :
9780 PRINT#ds%;" Sats in View: ";
9790 :
9800 REMark display sat signal data
9810 AT#dn%;31,5
9820 REMark reformat signal data for bargraph routine
9830 v$=","&snr1$&","&snr2$&","&snr3$&","&snr4$&","&snr5$&","&snr6$&","&snr7$&","&snr8$&","&snr9$&","&snr10$&",
     "&snr11$&","&snr12$
9840 FOR i=1 TO 12
9850 v$=chop$(v$,1)
9860 sn$=field$(v$)
9870 IF LEN(sn$)=0 THEN sn$="0"
9880 IF i=1 THEN AT#dn%;3,5
9890 IF i>1 THEN AT#dn%;3,(4*i)+1
9900 IF sn$<10 THEN PRINT#dn%;"0";
9910 PRINT#dn%;sn$!;
9920 sn%=sn$*(255/50):REMark bargraph scaling
9930 holdtime%=3:REMark adjust to lengthen or shorten the bargraph peek hold bar time
9940 IF sn%>peak%(i) THEN peak%(i)=sn%:pht%(i)=holdtime%
9950 IF sn%<peak%(i) THEN pht%(i)=pht%(i)-1
9960 IF sn%=peak%(i) THEN pht%(i)=holdtime%
9970 IF pht%(i)<=0 THEN peak%(i)=sn%:pht%(i)=holdtime%
9980 REMark bargraph ,bar width, bar height, x position, y postion, first/lowest bar colour, second bar colour,
     third bar colour, peak hold colour,bargraph level data, threshold from first to second, threshold from second
     to third, bar background colour, peak value
```

```
9990 bargraph dn%,5,255,(i*24)+10,45,2,0,0,1,sn%,255,255,0,peak%(i)
10000 END FOR i
10010 :
10020 REMark reformat extracted data so it can be read for the FOR/NEXT loop that follows
10030 v$=","&satv1$&","&Sate1$&","&sata1$&","&snr1$&","&satv2$&","&sate2$&","&sata2$&","&snr2$&","&satv3$&",
      "&sate3$&","&sata3$&","&snr3$&","&satv4$&","&sate4$&","&sata4$&","&snr4$&","&satv5$&","&Sate5$&","&sata5$&",
      "&snr5$&","&satv6$&","&sate6$&","&sata6$&","&snr6$&","&satv7$&","&sate7$&","&sata7$&","&snr7$&","&satv8$&",
      "&sate8$&","&sata8$&","&snr8$&","&satv9$&","&Sate9$&","&sata9$&","&snr9$&","&satv10$&","&sate10$&",
      "&sata10$&","&snr10$&","&satv11$&","&sate11$&","&sata11$&","&snr11$&","&satv12$&","&sate12$&","&sata12$&",
      "&snr12$
10040 FOR i=1 TO 12
10050 v$=chop$(v$,1)
10060 id$=field$(v$):REMark Satellite Identifier
10070 IF LEN(id$)=0 THEN id$="0"
10080 id%=id$
10090 IF i=1 THEN AT#dn%;31,5
10100 IF i>1 THEN AT#dn%;31,(4*i)+1
10110 IF id$<10 THEN PRINT#ds%;"0";
10120 IF id$<10 THEN PRINT#dn%;"0";
10130 PRINT#ds%;id%!;
10140 PRINT#dn%;id%;
10150 v$=chop$(v$,1):REMark Satellite elevation
10160 el$=field$(v$)
10170 IF LEN(el$)=0 THEN el$="0"
10180 el%=el$
10190 v$=chop$(v$,1):REMark Satellite azimuth
10200 az$=field$(v$)
10210 IF LEN(az$)=0 THEN az$="0"
10220 az%=az$
10230 v$=chop$(v$,1):REMark Signal from Satellite
10240 sn$=field$(v$)
10250 IF az$="0" OR el$="0" THEN NEXT i
10260 j=0:tint%=seentint%
10270 REPeat chkid
10280 IF satsusd(j)=-1 THEN EXIT chkid
10290 IF satsusd(j)=id% THEN
10300 tint%=usdtint%
10310 END IF
10320 j=j+1
10330 END REPeat chkid
10340 :
10350 IF ShowTrack%=0 THEN
10360 REMark At last can plot satellite in position
10370 REMark Plot only valid data and sat ID's over 0
10380 IF Inv%=0 AND id%>0 THEN :spot el%,az%,id%,tint%
10390 END IF
10400 END FOR i
10410 :
10420 REMark Spaces as end of 'ids' line for shorter overwrite
10430 PRINT#ds%;"      "
10440 :
10450 REMark Print validity
10460 PRINT#ds%;\"   ";
10470 IF Inv%=1:PRINT#ds%;"Inv";: ELSE PRINT#ds%;"V";
10480 PRINT#ds%;"alid Postion ";
10490 IF Mode3$=1 THEN PRINT#ds%;"Fix not available "
10500 IF Mode3$=2 THEN PRINT#ds%;"2D postion fix       "
10510 IF Mode3$=3 THEN PRINT#ds%;"3D postion fix       "
10520 REMark Spaces to overwrite longer 'Invaid' and postion fix messages
10530 :
10540 REMark uses extracted Lat and Long
10550 REMark Chopped gpsrmc$ also used by Track code
10560 CSIZE#ds%;3,1
10570 AT#ds%;3,0
10580 :
10590 REMark Display Latitude
10600 LatDeg$=Latitude2$(1 TO 2)
10610 LatMin$=Latitude2$(3 TO (LEN(Latitude2$)))
10620 PRINT#ds%;"  ";LatDeg$;CHR$(186);
10630 PRINT#ds%;" ";LatMin$;"'"!NSindicator2$;
10640 REMark Latitude
10650 lat=DecDeg(LatDeg$,LatMin$)
10660 IF NSindicator2$=="S" THEN lat=-lat
```

```
10670 :
10680 REMark Display Longitude
10690 LonDeg$=Longitude2$(1 TO 2)
10700 LonMin$=Longitude2$(3 TO (LEN(Longitude2$)))
10710 PRINT#ds%;"  ";LonDeg$;CHR$(186);
10720 PRINT#ds%;" ";LonMin$;"'"!EWIndicator2$
10730 Lon=DecDeg(LonDeg$,LonMin$)
10740 IF EWIndicator2$=="W" THEN Lon=-Lon
10750 :
10760 REMark Display Altitude
10770 AT#ds%;5,1:CSIZE#ds%;0,0:PRINT#ds%;"Altitude"
10780 AT#ds%;11,3:CSIZE#ds%;3,1:PRINT#ds%;Altitude$;" ";Meter1$;"etres"
10790 PRINT_USING#ds%;"#####.#",Altitude$/.3048:PRINT#ds%;" Feet"
10800 :
10810 REMark display UTC, processed way back
10820 AT#ds%;8,2
10830 PRINT#ds%;UTC$
10840 :
10850 REMark display date, processed way back
10860 AT#ds%;9,4
10870 PRINT#ds%;SatDate$(1 TO 2);"/";SatDate$(3 TO 4);"/";SatDate$(5 TO 6)
10880 :
10890 REMark Display Track data,
10900 AT#ds%;10,2
10910 trak$=COG$
10920 speed$=SOG$
10930 IF NumChk(speed$)<>0 THEN CSIZE#ds%;0,0:NEXT orbits
10940 Speed=speed$*1.150779:REMark Convert Knots to m.p.h.
10950 PRINT#ds%;"Track"!trak$;CHR$(186):REMark Bearing
10960 PRINT_USING#ds%;"     at ##.# m.p.h",Speed
10970 PRINT_USING#ds%;"     at ##.# k.p.h",speed$
10980 Brg=trak$
10990 :
11000 CSIZE#ds%;0,0
11010 :
11020 IF ShowTrack% THEN
11030 REMark Show track as a line: colour shows speed
11040 INK#dc%,Spink%(Speed)
11050 IF FirstPt%==0 THEN
11060 POINT#dc%,Lon*asprat*Mctr,lat
11070 FirstPt%=1
11080 ELSE
11090  LINE#dc% TO Lon*asprat*Mctr,lat
11100 END IF
11110 :
11120 REMark Show Speed and bearing as a line
11130 REMark .. Length and colour for speed
11140 REMark .. bearing as direction of line.
11150 CLS#dt%:INK#dt%,Spink%(Speed)
11160 POINT#dt%,0,0
11170 PENDOWN#dt%
11180 TURNTO#dt%,90-Brg:MOVE#dt%,Speed
11190 PENUP#dt%
11200 END IF
11210 :
11220 REMark Pause to slow down rate of refreshment
11230 PAUSE 50*delay
11240 :
11250 REMark End of repeat loop for continous of display
11260 END REPeat orbits
11270 CLOSE#cs%:IF dtof<>0 THEN CLOSE#dc%
11280 END DEFine display_data
11290 REMark ***********************************************************************************************
11300 DEFine FuNction chop$(str$,skip)
11310 REMark Chps off skip firlds from the start of str$
11320 REMark Haven't had to chop as far as the '*' yet
11330 LOCal i,j
11340 IF (skip < 1) THEN RETurn str$
11350 FOR i=1 TO skip
11360 j="," INSTR str$
11370 str$=str$(j+1 TO)
11380 END FOR
11390 RETurn str$
```

```
11400 END DEFine chop$
11410 REMark ************************************************************************************
11420 DEFine FuNction NumChk(a$)
11430 REMark Check if a$ contains a decimal number fixed point
11440 REMark Return: 0=ok; 1=empty; 2=>1 d.ps;3=non-numeric
11450 LOCal i%,a%,NoDecPts%:NoDecPts%=0
11460 REMark NoDecPts% hold the numer of dec pts found
11470 IF LEN(a$)=0 THEN RETurn 1
11480 FOR i%=1 TO LEN(a$)
11490 a%=CODE(a$(i%))
11500 REMark 48 and 57 are codes for '0' and '9'
11510 REMark .. I just like < more than <=
11520 IF a%>47 AND a%<58 THEN
11530 NEXT i%
11540 ELSE
11550 REMark Check for dec pt
11560 IF a%=46 THEN
11570 NoDecPts%=NoDecPts%+1:REMark Allow one dec. pt.
11580 IF NoDecPts%>1 THEN RETurn 2:ELSE NEXT i%
11590 END IF
11600 RETurn 3
11610 END IF
11620 END FOR i%
11630 RETurn 0
11640 END DEFine NumChk
11650 REMark ************************************************************************************
11660 DEFine FuNction GPSTime$(t$)
11670 REMark Extracts time from t$ — copy of RMC input
11680 REMark Should have used chop$ ect, but by this time the
11690 REMark data format seemed stable enough and CBB took over.
11700 t$=chop$(t$,1):REMark Remove '$GPRMC'
11710 RETurn '@ '&t$(1 TO 2)&':'&t$(3 TO 4)&':'&t$(5 TO 6)&'UTC'
11720 END DEFine GPSTime$
11730 REMark ************************************************************************************
11740 DEFine FuNction DecDeg(D$,M$)
11750 IF LEN(D$)==0 OR LEN(M$)==0 THEN RETurn 361
11760 IF ',' INSTR(D$&M$) THEN RETurn 362
11770 RETurn D$+(M$/60)
11780 IF LEN(D$)==0 OR LEN(M$)==0 THEN RETurn 361
11790 END DEFine DecDeg
11800 REMark ************************************************************************************
11810 DEFine FuNction field$(str$)
11820 REMark Extracts the first field from the NMEA message data
11830 REMark after it has been chopped to the start of the
11840 REMark field, with comma separated fields so making
11850 REMark no assumption about the field lenght
11860 LOCal k%
11870 REMark last field terminated by* at start of checksum
11880 REMark so need to check for ',' — if none then '*'
11890 k%="," INSTR str$
11900 IF k%=0 THEN k%="*" INSTR str$
11910 RETurn str$(TO(k%-1))
11920 REMark NOTE error such as empty string must be
11930 REMark dealt with on return from call
11940 END DEFine field$
11950 REMark ************************************************************************************
11960 DEFine PROCedure spot(elvn,azm,id,tint)
11970 REMark Draw a blob in tint at elvnm azm and show id
11980 REMark For a polar plot need to convert to x,y coords
11990 REMark Code for line plot added later
12000 LOCal x,y,srad
12010 REMark ignore data if id outside possiable range ..
12020 REMark .. it has happened, usually during start up of RX
12030 IF id>maxid THEN RETurn
12040 srad=(90-elvn)/90:REMark zero to one on plot
12050 x=srad*SIN(azm*PI/180)*asprat
12060 y=srad*COS(azm*PI/180)
12070 REMark Copy previous posn as 'old'
12080 posns(id,0)=posns(id,2)
12090 posns(id,1)=posns(id,3)
12100 REMark Save new posn for 'old' next time
12110 posns(id,2)=x
12120 posns(id,3)=y
```

```
12130 INK#dc%,tint:STRIP#dc%,tint
12140 REMark Draw sat as blob if first time plotted
12150 IF posns(id,4)<1 OR Blobs%=1 THEN
12160 posns(id,4)=1:REMark Remember as blobbed
12170 REMark Draw a blob
12180 FILL#dc%,1
12190 ELLIPSE#dc%,x,y,6E-2,asprat,0
12200 FILL#dc%,0
12210 REMark Show sat id in contrasting ink
12220 IF tint=seetint% THEN INK#dc%,0:ELSE INK#dc%,7
12230 CURSOR#dc%,x,y,-6,-5
12240 IF id<10 THEN PRINT#dc%,0;:REMark Add leading zero?
12250 PRINT#dc%,id:REMark At last, print sat id
12260 ELSE
12270 REMark ... otherwise draw line
12280 INK#dc%,tint:LINE#dc%,posns(id,0),posns(id,1) TO posns(id,2),posns(id,3):INK#dc%,0
12290 END IF
12300 END DEFine spot
12310 REMark ****************************************************************************************
12320 DEFine FuNction Spink%(S)
12330 REMark Returns a colour according to the Speed S
12340 SELect ON S
12350 ON S=0 TO 9.999:RETurn 0: REMark Black
12360 ON S=10 TO 19.999:RETurn 59: REMark Brown
12370 ON S=20 TO 29.999:RETurn 2: REMark Red
12380 ON S=30 TO 39.999:RETurn 236: REMark Yellow
12390 ON S=40 TO 49.999:RETurn 22: REMark Orange
12400 ON S=50 TO 59.999:RETurn 3: REMark Green
12410 ON S=60 TO 69.999:RETurn 25: REMark Blue
12420 ON S=70 TO 79.999:RETurn 26: REMark Violet
12430 REMark Shocking pink for over 80m.p.h.
12440 ON S=REMAINDER :RETurn 112
12450 END SELect
12460 END DEFine Spink%
12470 REMark ****************************************************************************************
12480 DEFine PROCedure bargraph (bc%,bw%,bh%,bx%,by%,col1%,col2%,col3%,col4%,bd%,th1%,th2%,bg%,pk%)
12490 REMark bargraph parameters
12500 REMark bc%=Screen channel number
12510 REMark bw%=Bar width
12520 REMark bh%=Bar height
12530 REMark bx%=Bar position x
12540 REMark by%=Bar position y
12550 REMark col1%=First/lowest bar colour
12560 REMark col2%=Second/mid bar colour
12570 REMark col3%=Third/top bar colour
12580 REMark col4%=Peak Hold colour
12590 REMark bd%=Bargraph level data
12600 REMark th1%=Threshold from first to second bar colour
12610 REMark th2%=Threshold from second to third bar colour
12620 REMark bg%=Bar background colour
12630 REMark pk%=Peak value
12640 BLOCK#bc%;bw%,bh%-bd%,bx%,by%,bg%:REMark background bar
12650 bd2%=bd%
12660 IF bd2%>th1% THEN bd2%=th1%
12670 BLOCK#bc%;bw%,bd2%,bx%,by%+(bh%-bd2%),col1%:REMark First bar level
12680 bd3%=bd%-th1%
12690 IF bd%>th2% THEN bd3%=th2%-th1%
12700 IF bd%>th1% THEN BLOCK#bc%;bw%,bd3%,bx%,by%+(bh%-th1%-bd3%),col2%:REMark second bar level
12710 bd4%=bd%-th2%
12720 IF bd%>th2% THEN BLOCK#bc%;bw%,bd4%,bx%,by%+(bh%-bd%),col3%:REMark second bar level
12730 BLOCK#bc%;bw%,2,bx%,(by%+(bh%-pk%))-2,col4%:REMark peek hold bar
12740 END DEFine bargraph
32000 DEFine PROCedure update
32010 SAVE win5_gps_QLToday_GPSProg6
32020 PRINT "Update complete"
32030 END DEFine
```

When you use QPC2 on Windows, Micro$oft's operating system is there whether you like it or not. Therefore, why not take advantage of it and make it work for its living? This article seeks to suggest ways in which we can take advantage of some Windows facilities from QPC2 using the QPC_EXEC command which Marcel Kilgus has kindly provided as an extension to SBASIC on QPC2.

QPC_EXEC takes one or two parameters:
QPC_EXEC "program filename","parameter string"

The first is a simple Windows path and filename of a program, which is specified in Windows format, e.g. the Notepad program could be in the main Windows folder as
"c:\Windows\NOTEPAD.EXE"
so to launch a program like Notepad from within QPC2:

QPC_EXEC "c:\Windows\NOTEPAD.EXE"

Assuming the usual defaults are defined in Windows, the path and possibly filename extension may be omitted:

QPC_EXEC "NOTEPAD"
or
QPC_EXEC "NOTEPAD.EXE"
could be used in this case.

You can also load a Windows file in this way, assuming that the extension concerned has a default program and action associated with it, e.g. on most Windows systems, a file with extension .TXT is associated with the Notepad text editor, so we could load a file called C:\MEMO.TXT like this:
QPC_EXEC "c:\memo.txt"

Note that Windows filenames are generally case insensitive, like QL ones. QPC_EXEC can handle strings enclosed with single or double quote marks.

If we wish to specify a program, we specify that as the first string, and the filename passed as the second string, which many Windows programs will take to mean "load the file called..."
QPC_EXEC "Notepad","C:\MEMO.TXT"

Printing

Where this becomes really useful is for getting Windows to do the hard work of printing a file, especially when it's a printer which doesn't understand Epson control codes or you want to try to take advantage of a special printer driver such as some of those which convert output to a PDF file. The best way of printing to this type of printer is to use Marcel's QPCprint program of course, but if like me you occasionally get caught out using QPC on a system which doesn't have a suitable printer, here is a little trick I use to print plain text files and SBASIC listings on such systems.

Some programs accept a "/p" command line switch to make them print the specified file automatically, e.g. Notepad can load and print a file if started with the parameter string "/p filename", so if we have saved our text file as a file called MEMO.TXT in the root directory of the C: drive:
QPC_EXEC "Notepad",'/p C:\memo.txt'

Notepad can't handle the QL end of line separator of a single linefeed with no carriage return. If this is a problem, use the Wordpad program instead:
QPC_EXEC "Wordpad","/p C:\memo.txt"

Or, if you have Micro$oft Word, you can use:
QPC_EXEC "Winword.exe","C:\memo.txt"

In all cases, you may have to locate and use the full path name for the Word program if it is not found automatically on your system. On this system, it is "C:\Program Files\Microsoft Office\OFFICE11\WINWORD.EXE"

Note that the syntax of these command lines is pretty strict. You must not mix up the forward slash and backslash symbols, and spaces must be included where required. In some examples below, involving Windows Explorer, the comma after the command switch is critical to the commands.

Fancy a spot of browsing? Try launching Internet Exploder (sic) with:
QPC_EXEC "C:Program Files\Windows Explorer\iexplore.exe"

Or to go to a specific website, such as my own (plug, plug...):

```
QPC_EXEC "C:\Program Files\Windows
Explorer\iexplore.exe",
"http://www.dilwyn.uk6.net"
```

Want to check your email? If you use Outlook Express, try:

```
QPC_EXEC "c:\Program Files\Outlook
Express\msimn.exe"
```

Want to print a graphics file? Convert it to a suitable PC format using a QL program like my BMP program, copy it to somewhere where Windows can find it such as the C: drive root directory) and load it into MSPaint like this:

```
QPC_EXEC "c:\program files\system32\
mspaint.exe","filename.bmp"
```

Obviously, replace filename.bmp with the full path and filename of the Windows graphic file.

Print it like this:

```
QPC_EXEC "c:\program files\system32\
mspaint.exe","/p filename.bmp"
```

Many PC programs seem to accept the /p switch to enable them to load and print the specified file.

While on the subject of printing graphics, I use a Windows program called IrfanView, by Irfan Skiljan. This is a very useful program which can handle many graphics file types, though not QL screens unless you convert them to BMP,GIF,JPG or whatever. It has comprehensive command line options, making it very useful for use from QPC (go into its IrfanView Help command, select the Index tag and find the help screen for COMMAND LINE OPTIONS to get a list of them). Irfan View can be downloaded free of charge from www.irfanview.net - it supports plugins for various file types, I wonder if anyone would be able to create a plug-in for loading QL screens and PIC files, this would solve our Windows printing problems from QPC at a stroke!

Most Windows programs will tell you their command line options from their Help screens - this can be very useful for adding them to QPC_EXEC commands.

Windows Explorer is the Windows file handler. If you wish to use it to browse folders on the PC hard drive, this too can be started with QPC_EXEC:

```
QPC_EXEC "explorer"
```

Or to browse starting at a given folder, using Windows Explorer's default view:

```
QPC_EXEC "explorer","/e,C:\"
```

(note the comma after /e)

Games

Fancy sneaking in a quick game of Solitaire when nobody's checking you're using QPC2 like you're supposed to? Try this:

```
QPC_EXEC "sol.exe"
```

Again, you may have to find the file's full path if not picked up by the default settings in Windows.

You can extend this idea to many PC programs as long as you can find a suitable executable file. You can also execute Windows batch files if you wish, although you may find you get a DOS window unless you know how to suppress this. If you want to get to a DOS command prompt from QPC (e.g. to use DOS commands to achieve something you can't do directly in Windows), just enter this command:

```
QPC_EXEC "cmd"
```

Just remember to type EXIT to get out of the DOS command prompt.

DOS Commands

When you want to print a list of files in a given directory on the QL, you just enter the command DIR WIN1_directoryname_.
Try doing that in Windows, which has no direct facility to do this unless you resort to a DOS command. Grrr. QPC to the rescue again. We can use QPC2 to send a suitable DIR command to Windows to help it out of this little pickle:

```
QPC_EXEC "cmd","/C DIR /b C:\foldername\ >prn"
```

This sends a list of files in the folder specified to the printer specified by prn. Alternatively, we can send output to a text file by replacing >prn with >C:\list.txt for example. Sending output to a file like this can be useful if we wish to process a list of Windows files, but there are filenames whose paths are too long for the QPC filename length limit (e.g. music files).

Don't know the syntax of the DOS commands? Force DOS to help us (literally) by asking for help on a given command:

```
QPC_EXEC "cmd","DIR /?"
```

Entering /? after a DOS command makes it print help text to the screen for that command. For general help with DOS command line switches:
`QPC_EXEC "cmd","/?"`

Playing Music and Video

Marcel has thoughtfully provided us with a QPC audio CD player. But here's how to play MP3 and WMA audio files from QPC. This relies on finding the wmplayer.exe file (in *C:\Program Files\Windows Media Player* on my Windows XP system):
`QPC_EXEC "wmplayer.exe","path_filename.mp3"`

Some command line options are available, such as /play to start the file playing as soon as its loaded, /close to close down the player after it finishes playing the song, and /fullscreen to force the player to start in full screen mode. Note that not all versions of Windows Media Player support all of these options. You can also try the *MPLAYER2.EXE* program to see if that supports any particular option.

You may be able to play some DVDs and audio CDs by using the /DEVICE:DVD and /Device:AudioCD options:
`QPC_EXEC "wmplayer.exe",'/Device:DVD'`

CD Writing

Believe it or not, you can start the CD writing task from QPC like this, although this needs more hands on with Windows than previous examples. The main use for this is likely to be backing up your QXL.WIN file containing all your QL files. This only works on versions of Windows with CD writing software built in, e.g. Windows XP.

Use the following QPC_EXEC command to start a single pane window view with a File And Folder Tasks option. Take care with the second string - make sure there's a comma between /select and the filename.
`QPC_EXEC "explorer","/select,c:\qxl.win"`

When the window appears, in the File And Folder Tasks box on the left, click on the Copy This File command. When the Copy Items window appears, click on your CD writer drive name, then click the COPY button at the bottom. A balloon will appear from the System Tray's CD icon (bottom right of screen) saying "You have files waiting to be written to the CD. To see the files now, click this balloon."

Do so, and a window appears with options in the "CD Writing Tasks" box to:
Write These Files To CD
Delete Temporary Files

Select the required option. If you elect to write to CD, follow the instructions offered by the Wizard to complete the CD creation.

HOTKEYS

To avoid having to type in lengthy QPC_EXEC commands, regularly used ones can be used via HOT_CMD hotkeys, which pick the BASIC command line and send the command to be executed. This lets us put regularly used QPC_EXEC command onto hotkeys with a single line in our BOOT program:
`ERT HOT_CMD('a','qpc_exec "notepad", "c:\memo.txt"')`

Launchpad

QPC_EXEC support is built into the Launchpad GUI. In Launchpad, go to the UTILITY menu, then the QPC:Launch DOS/Windows File command, and enter the details into the two boxes (top one contains the Windows program file name, bottom one contains the filename of the text or graphics file to load, or a web address if launching Internet Explorer for browsing, for example). Finally click on OK to get it all going.

Summary

Some of us tend to use QPC2 and largely ignore Windows (on the basis that the word Windows stands for where we throw the PC out of when it goes wrong!). But I hope that this article shows that Windows can in fact be very usefully used by QPC2 from within QPC2 to enhance our computing experience. And by doing all this from within QPC2, it doesn't half give you a feeling of satisfaction since you are controlling Windows rather than it controlling you!

Solution

Please ignore and continue to read... after you have read page 47, you may wish to come back to this page and turn the magazine upside down!

"IF AT FIRST YOU DON'T SUCCEED, TRY, TRY AGAIN."

Replies to George's comments on part 21

[GG] indicates comments from George Gwilt, *[ND]* indicates comments from Norman Dunbar.

[GG] One of these days I might not have any comments at all on an article by Norman Dunbar. In that case I would probably send a letter saying so. That would be rather like those extraordinary pages you sometimes see which contain nothing except the remark:
"THIS PAGE IS INTENTIONALLY BLANK"

Except, of course, it is no longer blank.
However, on this occasion, I do have one or two comments.

[ND] The day that George has no comments on one of my articles will be the day that I finally get it right. I appreciate the fact that George takes time to help me improve both my own skills and at the same time, improve the quality of my articles.

[GG] I am flattered that Norman has accepted my suggestion that trap #3 calls should set in a subroutine.

[ND] Well I accepted it because it made sense, reduced the amount of code that had to be typed and meant that there was less room taken up by code in the magazine which perhaps allowed some additional editorial to be included for the benefit of the non-assembly readers.

[GG] However, in the section labelled Pointer on page 26, the trap #3 is called explicitly on the grounds that there would not be an error. In the next instruction D0 is made zero. Why is that I wonder? If there is no error D0 will be zero. If there is an error would it not be better to process it by using `bsr Trap3` instead of ignoring it?

[ND] I've looked at my code and indeed there is an instruction that sets D0 to zero after the trap to read the pointer. This is not needed and is indeed spurious. I wonder if I was thinking of something else when I wrote it? Basically it doesn't make sense for that line to be there.

[GG] Could there in fact be an error? The set of extras TK3, marketed by Freddie Vaccha, contained the procedure `CLOSE%` which could be used to close any open channel. It is therefore just possible that the channel opened at the start of the program could be closed before one of the occasions on which Pointer is reached. However that may be it is still not necessary to set D0 to zero since it is not used until seven instructions later when it is set to `#io_sstrg`

[ND] No, I think the `CLOSE%` command can only close SuperBasic channels (or those contained within a compiled SuperBasic program. Toolkit 2's `CLOSE` command also closes all open channels but only for the current SuperBasic job. I don't think either affect channels opened that are not in the Basic channel table in `BV_VARS`. The real reason the line is there is simple, it's an error!

[GG] In Ploop on the next page the instruction:

```
suba.l  #2,a3
```

appears.

There is absolutely nothing wrong with that except that

```
subq.l  #2,a3
```

would be shorter and quicker. I suspect that this is in fact a mistyping by Norman who intended the "q" all along.

[ND] George is too kind - as ever - in giving me the benefit of the doubt. I have no idea whether I meant to have a subq.l or a suba.l at that point in the code. I suspect the latter to be brutally honest!

[GG] A more serious objection comes in SpaceNext. The instruction:

```
cmp.w   d7,(a3)+
```

has to be written:

```
cmp.w   (a3)+,d7
```

I must confess that I only found this out by trying

vainly to assemble the first form and then checking the manual to confirm the second.

[ND] Now this surprised me because I knew that I had been able to assemble and run the program, so with an error like this in the source code, I should not have been able to - as George found out.
Normally I write the code, assemble it and test it before I embed it in my article. I have checked my source file and I find that it is indeed the correct way around. To this end I seem to have made a correction at some point and forgotten to save it back to the disc before embedding the 'working' version in my article. Apologies all round for that omission. I do have the correct version in my source control system!

[GG] The routine Hexit is a nice example of a convoluted form of programming where a subroutine is used, but not called, twice. The first time Nibble is used its RTS returns to code inside Hexit, but the second time the RTS returns from Hexit. Neat.

[ND] I'm afraid that I can accept no credit for the neatness of said HEX routine. It is blatantly stolen from a routine I used for many years on my Spectrum. I simply converted it from Z80 to MC680xx. I believe that a similar method is used internally in QDOSMSQ for the binary to hex conversion vectors.

I think the rule is, if you see any neat code in my listings - best assume I stole them! :-)

[GG] Also inside Hexit is the storing and recovering of a byte on the stack. Although there is absolutely nothing wrong with this it might be interesting to remember that when a byte is to be put on the stack the stack pointer is first reduced by two, not one, and then the byte is put on the stack. When a byte is taken off the stack the pointer is increased by two afterwards.
This is because the hardware sees to it that the stack pointer is always set to an even byte.

[ND] This is correct and indeed I actually knew it did this. I think the hardware does it's best to keep the SP on an even address - for good reasons. Another thing that people sometimes forget is that when adding a byte or word value to an address register, the byte or word is sign extended to a long size and then added. For add read subtract as well, as the same rule applies.

[GG] In DoIt one instruction could be saved by using `bra.s Trap3` instead of `bsr.s Trap3` followed by `rts`.

[ND] Another bug in my inability to load the correct code into my article. The code should have read:

```
DoIt    moveq   #io_sbyte,d0
                ; Send one byte to channel
        trap    #3          ; Do it
        tst.l   d0          ; Ok
        bne     Exit        ; No bale out
        rts
```

Because that's what it looks like in my source file. I note the printed version reads :

```
DoIt    moveq   #io_sbyte,d0
                ; Send one byte to channel
        trap    #3          ; Do it
        rts
```

The 'long' version is correct because after a Trap instruction, I need to test D0 to make sure the flags are set for an error condition. If I try and check the Z flag after a trap I'll get the state of the Z flag before the trap - because the status register is stacked before the trap and restored after it. Thus only D0 contains any information about the final outcome of the Trap routine. Again, my apologies for not embedding the correct source file in the article.

[GG] On page 29 Norman describes the event vector. At the pointer level bit 6 indicates "Pointer hit edge of screen". You can test this by adding 64 (2^6) to TermVec and then assembling the program because bit 6 causes a return when the pointer hits the screen's edge.

[GG] Norman mentions job events in connection with the event vector. A job can wait for a set of events or can send a set of events to another job. There are eight possible events each represented by a different bit in a byte. Thus sending the value 255 to another job is to send all events 0 to 7. Sending 36 would be to send events 2 and 5. Bits 24 to 31 of the event vector contain the job events that have occurred.

[ND] Thanks George. This is the sort of information I was after when I mentioned in the article that my docs were out of date and that one of my eagle eyed readers would update me. When I get this information on the **qdosmsq.dunbar-it.co.uk**

web site, it will be updated. In addition I have put out a request on the QL Users list for advice on upgrading the documentation that I do have.

[GG] When I ran Norman's program I soon discovered that after 14 events had been recorded in the window, scrolling destroyed the explanatory lines at the top of the window. To prevent this I altered the program as follows. Just before Pointer I inserted:

```
        moveq     #-13,d4               ; to count 14 lines
```

At PrintOut I added:

```
        addq.w    #1,d4
        bmi.s     PrintOut1
        bsr.s     Scroll
PrintOut1:
```

The subroutine `Scroll` which is set just before `Trap3`, is:

```
Scroll  moveq     #2,d2                 ; line 2
        bsr.s     Pos                   ; Set cursor to x=0, y=2
        moveq     #-10,d1               ; Scroll up one line
        moveq     #sd_scrbt             ; Just scroll the lower part of the window
        bsr.s     Trap3
        moveq     #14,d2                ; line 14 (bottom line)
Pos     moveq     #0,d1                 ; Set cursor back to x=0, y=14
        moveq     #sd_pos,d0
Trap3
```

[ND] I knew my program would scroll the headings off the top of the screen and was actually thinking of a change to allow the headings to remain. George has saved me the trouble! Had that been a quality utility with proper error checking and so on, I would have written it in a similar manner to keep the headings.
I have to admit also that I had completely forgotten about the fact that CLS, PAN and SCROLL allow various bits of the screen to be clears, panned or scrolled. I have always tended to work with the entire screen when using these in SuperBasic and I suspect I have carried that mindset over to my assembly code. Something to try and unlearn I think.
Just in case I missed out any other corrections when embedding the (wrong) source file in my article I have run a 'diff' between the code extracted from the published article and what I have in my source file. The two changes mentioned above are the only differences. Once again, my apologies for embedding the uncorrected program code.

Norman adds:
I have amended my source file to include George's corrections and the new 'scroll' sub-routine and it works very well, however, the addition of the new code just before the label 'trap3' causes that subroutine to become too far away for a short BSR and so the following code will need to be changed if you too add George's code:

```
        lea       ConDef,a1             ; Definition block
        bsr       Trap3                 ; Do trap #3 and return here if all ok.

        moveq     #sd_clear,d0          ; cls
        bsr.s     Trap3                 ; Do trap #3 and return here if all ok.
```

The above is located just above `FindPE` The `BSR.S` instruction in the last line above needs to change to the following:

```
        bsr       Trap3                 ; Do trap #3 and return here if all ok.
```

"Guess" and "Slider"

by Stephen Poole

From the material which is waiting here from Stephen to be published (thanks, Stephen, for providing us with interesting, short programs which are useful to type in, understand and modify) we have chosen two programs for this issue. [Editor]

First, "Guess"

This is one of the easiest of guessing games to write, and is ideal for programming beginners to study. First you input a difficulty level which determines how many digits there are in the number to guess. You can have up to eight digits long, which is more than the random-number generator can produce, so two four-digit results are concatenated together. Then the game-loop asks you to guess the number. The program will reply 'Too big', 'Too small' or 'Bravo!'. The number of your tries is indicated and there is a simple strategy which you can discover, which will allow you to find the answer in approximately the theoretically minimum number of tries mathematically possible. Anyone understanding the expression 'Binary Chopping' will know the solution! Try rewriting the program with the QL replying 'Hotter...' or 'Colder...' if your guess is nearer or further from the target. There are many variants of guessing games, many of which were popular on the ZX81 or Spectrum models. In a more condensed form, these games will occupy but a few hundred Octets of memory, an important consideration on early machines. With current PC's possessing Gigabytes of memory, it is all too easy to write verbose bloatware for emulators, and it can be useful to get inspiration from early games to see how to write efficient code. Although extremely simple, this game will tax your memory at higher levels of difficulty.

```
100 ::
110 REMark GUESS_bas. by S.Poole v31aug2006
120 :
130 CLS
140 INPUT'Difficulty (1 to 8) or (Q)uit:'!i$
150 IF i$=='q': EXIT loop: ELSE i=i$
160 IF i$ INSTR '12345678': ELSE GO TO 140
170 a$=RND(1 TO 9999): b$=RND(1 TO 9999): r$=a$&b$
180 ct=1: r$=r$(1 TO i)
190 :
200 REPeat loop
210    PRINT ct!"Guess?";: INPUT!n$: ct=ct+1
220    IF n$=r$: PRINT 'Bravo!': PAUSE 500: RUN
230    IF n$<r$: PRINT 'Too Small.'
240    IF n$>r$: PRINT 'Too Big.'
250 END REPeat loop: STOP
260 ::
```

Next, "Slider"

This year I have been very busy, but my wife and I did manage to take a few days break in the Alps, but as I have no portable computer I could not write any programs. Or so I thought : One day of rain got me reading a book on ZX and Spectrum programs, and so I decided to rewrite one by hand for the QL : Slider. You start with a well-known phrase or saying, which you then scramble and must reconstitute it by sliding square letters around a grid containing one space until you have got it all right again. To make it harder, I haven't given you the phrase: You must first discover it from its anagram. (The saying is printed on page 43 of this magazine all the same in case you wish to cheat...) The program is relatively simple to use. Just press the arrow-keys surrounding the underline-character you wish to swap. The program keeps a count of your number of tries, so you can see if you make any progress from one game to the next. The skill in the game comes from forseeing how to order the necessary permutations. Well soon I hope to write some entirely original programs, but this one should keep you occupied for some time as it was very popular as a hand-held game. If you enjoy a challenge, try adapting the code so that the QL solves the problem by itself...

```
100 ::
110 REMark SLIDER_bas. by S.Poole, v4sept2006
120  REMark For QL Today
130  Q$="AAACCDDEEFFGIIINNOORRRSSTTTTTUUYYY'_"
140  OPEN#1,con_64: WINDOW 256,206,256,0
150  PAPER 2: INK 7: STRIP 0: CSIZE 3,1: CLS
160  UP=1: DOWN=6: LEFT=1: RIGHT=6: CT=1: Rd=0
170  DIM R$(6,6): Lg=LEN(Q$)
180 :
190 REMark Scramble the Puzzle:
200 REMark First work Across:
210 FOR f=1 TO 6
220     REMark Then work down:
230     FOR j=1 TO 6
240         REMark Select a letter from the list:
250         REPeat loop
260             Rd=RND(1 TO Lg): R$(f,j)=Q$(Rd)
270             REMark If already selected, try next letter in list:
280             IF R$(f,j)='*' THEN
290                 REMark Or cycle back to start of list:
300                 Rd=Rd+1: IF Rd>Lg: Rd=1
310                 ELSE EXIT loop
320               END IF
330            END REPeat loop
340            :
350            REMark Mask off letters selected in the list:
360            Q$(Rd)='*': AT j,f: PRINT R$(f,j)
370            REMark Note the underline coordinates:
380            IF R$(f,j)='_': hz=f: vt=j
390        END FOR j
400 END FOR f
410 :
420 REMark Now for the main game:
430 REPeat loop1
440     REMark Flash the underline and Wait for a keypress:
450     REPeat loop2
460        OVER -1
470        AT vt,hz: PRINT '_': i1$=INKEY$(#1,9)
480        AT vt,hz: PRINT '_': i2$=INKEY$(#1,9)
490        i$=i1$&i2$: IF i$<>'': EXIT loop2
500        OVER 0
510     END REPeat loop2: OVER 0
520     IF i1$<>'': cd=CODE(i1$)
530     IF i2$<>'': cd=CODE(i2$)
540     :
550     REMark Now swap the letters:
560     IF cd=208: IF vt=UP    : NEXT loop2: ELSE Pr hz,vt-1: vt=vt-1
570     IF cd=216: IF vt=DOWN : NEXT loop2: ELSE Pr hz,vt+1: vt=vt+1
580     IF cd=200: IF hz=RIGHT: NEXT loop2: ELSE Pr hz+1,vt: hz=hz+1
590     IF cd=192: IF hz=LEFT : NEXT loop2: ELSE Pr hz-1,vt: hz=hz-1
600     IF cd=27 : EXIT loop1 : REMark press ESCape to Quit.
610 END REPeat loop1: AT 8,1: PRINT CT!: CSIZE 0,0: STOP
620 :
630 DEFine PROCedure Pr(p1,p2)
640  REMark Get rid of program clutter:
650  temp$=R$(p1,p2): R$(p1,p2)='_': R$(hz,vt)=temp$
660  AT vt,hz: PRINT temp$: AT p2,p1: PRINT '_'
670  AT 8,1: PRINT CT: CT=CT+1
680 END DEFine
690 ::
```

** We have moved **

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Database		
QL Cash Trader v3.7		£ 5.00
Accounting/Finance		
QL Payroll v3.5		£ 5.00
Accounting/Finance		
QL Genealogist v3.26		£ 20.00
Genealogy		
Genealogy for Windows		£ 50.00
QL Genealogist to Windows version upgrade		£ 25.00
QL Cosmos v2.04		£ 5.00
Planetarium		
Q-Route v2.00		£ 25.00
Route Finding		
Upgrade from v1.xx		£ 5.00
Britain map v1.11		£ 2.00
BIG Britain map (needs 2Mb) v2.03		£ 5.00
Various Britain Area maps (ask for details)	ea.	£ 2.00
Ireland map v1.00		£ 5.00
Belgium map v1.01		£ 2.00
Catalonia map v1.03		£ 2.00
P-Word UK English Dictionary (500.000 words!)		£ 15.00
Dictionary		

Leisure

Return to Eden v3.08	£ 10.00
Adventure	
Nemesis MkII v2.03	£ 8.00
Adventure	
The Prawn v2.01	£ 8.00
Adventure	
Horrorday v3.1	£ 8.00
Adventure	
West v2.00	£ 5.00
Adventure	
The Lost Kingdom of Zkul v2.01	£ 5.00
Adventure	
All 6 games above	£ 25.00
D-Day MkII v3.04	£ 10.00
Strategy/War Simulation	
Grey Wolf v1.08	£ 8.00
Graphical Submarine Simulation	
War in the East MkII v1.24 (upgrade only)	£ 5.00
Strategy/War Simulation	
Open Golf v5.20	£ 8.00
Sports Simulation	
QuizMaster II v2.07	£ 5.00
Quiz	
Stone Raider II v2.00	£ 5.00
Arcade Game	
Hoverzone v1.2	£ 5.00
Arcade Game	
Deathstrike v1.5	£ 5.00
Arcade Game	
Flightdeck v1.0	£ 10.00
Flight Simulation	
All 6 games above (Open Golf, QuizMaster II,Stone Raider II, Hoverzone, Deathstrike and Flightdeck)	£ 28.00

Notes on Software requirements

The following programs have a minimum SGC card requirement: P-Word, Qword, Big Britain MAP for Q-Route

Resizing Windows in the Pointer Environment

by George Gwilt

To move windows about inside your program written for the Pointer Environment (PE) is a doddle. You just use the subroutine WM.CHWIN provided in WMAN, PE's window manager. The move icon appears and the user moves it to where he wants the window to be set and clicks on the mouse's left button. The window, with its contents, obligingly moves to this new position.

To resize a window you also use WM.CHWIN, but you have to do a lot of work yourself before a successful resize occurs. It is this extra work that I will now describe. The manual's description of WM.CHWIN says:

In the case of a change size operation WM.CHWIN will determine the distance moved by the pointer and return this as the change of size. If the convention that the window change size icon is in the top left hand corner of the window is being followed, then the move distance should be subtracted from the current window size.

The manual also says:

The size dependent layout features of the Window Manager mean that the interpretation of a window change size operation is largely the responsibility of the application.

The reason for this last remark is that there are so many different ways of defining windows whose size can be varied that PE software could not possibly be written to cope with all the variations of a resize. That is why the user has to use the change of size returned by WM.CHWIN to set up the new window himself.

In what follows I am going to use what I think is the standard method of defining variable windows.

Window Definition and Working Definition

For every PE window displayed on the screen there is an underlying window working definition. This contains information about the window and its contents. This information includes in particular the window's size and origin. In a normal PE program a working definition is produced from a window definition.

The window definition contains the information needed to produce all the various working definitions that may be needed. In particular a window definition which will allow resizing is set up in this way. A window definition starts with a fixed block detailing some of the fixed information about the window including its maximum size. This is followed by at least one repeated section. Each repeated section contains a size which must be less than the size in the previous repeated section and no larger than the size in the fixed block. The size in a repeated section can be coded as variable. In this case a working definition can be set up with a size intermediate between that size and the size in the previous section.

I am now going to describe the process of using this information to set up the changed window. Since the program may be written in Super-BASIC (or SBASIC), C or assembler I will give no quotes of program to be used. I must, however, point out that all the languages make use of WM.CHWIN.

QPTR's keyword is CH_WIN, TurboPTR's is BCHSZ and C uses the function wm_chwin.

What follows is part of a window definition showing a window with size which can be varied between (336,138) and (1268,793). I use this as an example.

Window Number 1

1	number of repeated sections less 1
-1	total number of application windows less 1
1268	x-size of window (excluding border and shadow)
793	y-size of window (excluding border and shadow)
10	initial x position of pointer in window
6	initial y position of pointer in window
1	shadow depth
1	border width
4	border colour
242	paper colour

-1	sprite number (-1 means none)
1	current item border width
0	current item border colour
7	background colour for unavailable item
4	ink colour for unavailable item
-1	index number of blob for pattern for unavailable item
-1	index number of pattern for blob for unavailable item
7	background colour for available item
0	ink colour for available item
-1	index number of blob for pattern for available item
-1	index number of pattern for blob for available item
0	background colour for selected item
7	ink colour for selected item
-1	index number of blob for pattern for selected item
-1	index number of pattern for blob for selected item

Repeat Number 1

16720	horizontal size for this layout + scaling (4/4 + 336)
16522	vertical size for this layout + scaling (4/4 + 138)

I take it as intuitive that if the resize icon is situated at a corner, a movement towards the opposite corner should decrease the size and a movement away from the opposite corner should increase the size.

I assume initially that the resize icon is situated at the top left of the window.

The question is, what do we do if the size change reported by WM.CHWIN is (x,y)?

The first thing to do is to subtract x from the current x-size and y from the current y-size. You can see that this is sensible. Positive values for x and y indicate that the icon has been moved to the right and down. That is, toward the bottom right corner of the window from the top left thus indicating a decrease in size.

We must now see that the window is not made too small. The minimum in our example is (336,138). Thus the new x-value must not be smaller than 336. Nor must the new y-value be less than 138.

Another constraint is that the new size must not exceed the maximum size for the window. Thus

the new x-value must be no more than 1268. Nor must the y-value be greater than 793.

A further consideration arises if the program is to run with different screen sizes. The new x-size must be less than the current screen size with allowance for shadow and border. The same applies to the y-size.

Having at last produced reasonable values for x and y we have finally to make sure that the x-value is even.

We are now in a position to throw away the existing working definition and to set up the new one. Setting up is done by WM.SETUP with parameter (x,y). This sets up a working definition with the new size. TurboPTR accesses WM.SETUP via M_SETUP and C uses the function wm_setup.

If the resize icon is at the top right of the window instead of the top left x has to be added to the current x-size, not subtracted. Similar amendments must be made if the icon is at one of the other two corners.

Positioning

Our resizing troubles are not yet over. At least that is what I found in the early days of struggling with PE.

Maybe I am just pernickety, but I do not like for example QD's habit of moving position when it is resized. I was determined that in my programs a resize would leave unchanged the position of the corner opposite to that containing the resize icon.

This requires more work but I find it rewarding. But how is it done? The PE software allows the user to specify where the window is to appear. This can be either the current position of the cursor (parameter -1) or at a particular point (parameter X,Y). When a window is positioned at a particular point, the PE software places the window so that the cursor which appears in the window is as near the particular point as possible. So, we want to present WM.PRPOS (which is the Window Manager's routine for placing a primary window) with the address equal to the current origin of the window (found from its current working definition) plus the 'origin' of the pointer in the window (found from the window definition) less the actual change in size.

It may be interesting to note that if the resize icon is at the top right of the window instead of the top left, you have to subtract only the change in height (the new y-position less the old y-position) instead of the change in both x and y. The adjustment for size needed when the icon is at one of the other two corners should now be obvious.

Are Our Troubles Over?

In many real programs the window will contain more than is set up by the PE software which, in drawing the window, is restricted to the information in the working definition. If your program prints instructions, for example, these will not appear unless you reprint them after the window is resized.

Also, if the program has extracted for use information about the current state of the window this may well have to be updated on a resize.

This is just a warning that there may be more to be done depending on the program.

Final Comments

Readers may want to ask questions at this stage. So I answer two of the questions here.

1. If your window's maximum size fills the whole screen how can a size change ask for a bigger window? Is the restriction to maximum really necessary?

ANSWER

a. Unless the resize icon is absolutely at the top left of the screen it is still possible to move it up slightly from inside the biggest window. This creates a request for an even larger window. So the restriction to maximum size is needed.

b. By placing the pointer at the bottom right of a window and then using CTRL/F3 you will start with the resize icon near the bottom right of the window. Moving it to the top left of the screen will give a large increase to an already maximum window! The increase can be too large even for windows smaller than the maximum.

2. There are occasions when the bottom right of the window moves on a resize. Why?

ANSWER

If a window is placed to the extreme left and then the resize icon is moved left the wider resized window's right hand side must move right. The PE routine WM.PRPOS does not guarantee that the pointer WILL appear at the chosen point but only that the window will be positioned so that the pointer will be as near to that point as possible. The alternative would have been to draw a window half off the screen, as I am told is possible on other computer systems.

A quick reply from Jochen

Thank you, George, for explaining the resize in detail. I have had similar problems when I first tackled resizeable windows.

As you mention QD, I would like to add a few comments (referring to QD Version B.01):

In QD, the reference point (which I try to leave at the same position) is the bottom right corner. You can try that this works quite well if you resize QD vertically, i.e. reduce or increase the number of lines. If you move the resize pointer up and down (and please try not to move much sideways, as this could also lead to horizontal enlargement) you will find that the bottom right corner remains where it is.

If you start moving horizontally (instead, or in addition) you will notice that the window might move as well, if there is space. The reason for this is, that QD resizes in multiples of 20 characters or so. If we would allow resizing in single character units, the window would not move (but I fear that several internal routines would not be able to deal with this situation). However, at some early stage, we allowed QD to have 40 and 60 characters (when there were fewer menus and no icons and lower resolutions). Also, the resize steps were different. The code has been modified many times over the years, and is/was located at different areas, as it was partially written by Stefan and partially by me.

I guess, we decided at some stage that, if you move the resize cursor, say, up to 10 characters to the left it is treated as no resize and the window moves instead, and if it is between 10 and 20 characters, the window is resized by 20 characters. Same for 40 and 60 and so on.

If the horizontal resize reaction would be immediate, a small move of a pixels sideways would result in horizontal resizing.

I think with additional checks and calculation, the sideways move could be ignored in case there is no general resize in steps of 20 characters necessary because of the rule above. The code is old and spread over several sourcers... I fear the side effects could be worse than a little move.

QL Today started 2008 on a depressing note. My first editorial of the year was a reaction to the news that a long established trader was to cease active trading. Looking back I was unduly pessimistic in that editorial, but at the time we could not be sure whether there would be a knock on effect and, if so, how great it would be. We were genuinely concerned about possible dangers to the medium and long term future of QL Today.

Tony Firshman had made a decision to reduce his QL activities because of other demands on his time, which he explicitly explained in emails to QL Today and Quanta. In short he felt he could no longer offer the standard of service that an active advertising presence would require. In his own words:

'I will be doing things for any QL-ers who approach me, but I don't want to encourage anyone! This is partly because there will be a long delay in anything I do. For instance it took me about 5 weeks to fulfil a recent order. In the circumstances it is not on for me to advertise my services.'

QL-ers simplistically interpreted this as meaning that Tony was totally quitting the QL community for financial reasons. QL Today and Quanta must accept some blame for this. We ran an accurate story, but with a misleading headline and the Quanta Magazine had a bald one sentence statement that *'...Tony Firshman will no longer be involved in QL activity...'*. Both John Gilpin, acting Editor of the Quanta Magazine, and I regret that we caused Tony some harassment through our reporting. At a busy time he was pestered by 'vultures' kindly offering to take his stock off him provided he did not charge for it.

One thing has become clear from the Tony Firshman story. It is hard to shake the belief of many QL-ers that when a trader runs down or closes his business it simply a question of finance. Even Quanta appears to subscribe to this point of view. A trader pointed me to some remarks about traders in a recent editorial in the Quanta Magazine:

'Not over surprisingly the Traders have been finding the market diminishing for their wares. Some have even had to abandon trying to make a living out of the QL scene.'

The trader asked if Quanta was aware that the last person to make a living from the QL was probably Freddy Vaccha, who left the QL scene about 13 years ago. Was this just an unfortunate choice of words or does Quanta really think that traders have been making vast sums of money in recent years?

In practice viability for traders is not just a question of money. A much bigger factor in determining how active they will be in the QL community is the demands on their time and the returns they can expect from their time investment.

As it happens Quanta provides us with some good examples of how non-viability is not always financial.

While writing this article I received the latest Quanta Magazine with the news that there is unlikely to be a Quanta workshop in the south this autumn. Arguably southern England shows are no longer viable, but not because of money. The two great stalwarts who have successfully run many shows over the years, Ken Bain and Roy Wood, have decided that show attendance is now so poor that they can no longer justify the work and effort needed to run a show.

At its last AGM Quanta members approved a detailed procedure for closing the organisation should it prove impossible to find a chairman to replace John Mason. Again this has nothing to do with money. An organisation is not viable without a chairman, secretary or treasurer.

Way back in 2003 some people made unrealistic assumptions about the viability of Just Words! At the time there was discussion on the QL-users email group about the possibility of a major international show, QL2004. Unfortunately it was all talk and no action. Eventually I organised the show in Eindhoven with Sin_QL_Air and Jochen Merz. My remarks that the UK had not deserved the show led to a serious rebuke from a user. As a trader I should know better than to criticise my clients. I should be grateful and kow-tow to them for being my life blood.

I was in a particularly bloody-minded mood that year and sharply replied that if people did not like my attitude then I would happily close Just Words! The QL community would be the loser and I would be the winner in both time and money.

Let's take a calmer look at my situation in 2003 that led me to take that attitude. First some general observations.

- Fewer than 1 UK QL-er in 10 has ever bought a Just Words! program.
- In the eleven years I ran Just Words! commercially I made a profit in just four.
- The total deficit of the project was £588.31.
- My flagship program since 2000, QL-2-PC Transfer, which has received many accolades, has sold under 60 copies.

Specifically in 2003 I sold just 5 programs and made a loss of £142.17

Why then did I keep Just Words! in existence? In 2003 I had three main activities.

The first was the final preparations, together with the other team members, for the release of QWord. I made no money from that in 2003, but it was a nice little earner for Just Words! in subsequent years. The "nice little earner" has sold in total about 25 copies. For comparison purposes in the year we released QWord there were well over 300 QL-ers in the UK.

The second activity was a commission from another trader to provide word lists in as many languages as possible for a third party non-QL software author. I spent many hours compiling and checking these lists, but I did not receive any payment for my efforts. Somewhere in the chain someone defaulted on his bills. The work was not in vain because the QL community got a vast range of new and corrected QTYP dictionaries, now freely downloadable from my website.

The third and main activity was helping people transfer their files from the QL to the PC. I received little payment for this work because it was mostly part of the after sales service for purchasers of QL-2-PC Transfer. Most clients were "black box" users with a simple QL use largely restricted to the Psion programs. Many were very elderly and anxious that important family and business documents in QL format would be available to their PC using children after their death.

In my very first article in the very first issue of QL Today I made a plea for "not for profit" QL trading: "You do not have to have mega-sales to cover the cost of developing specialist software. It may even be worthwhile to produce a program that sells fewer than 30 copies. You do not charge for your labour and fixed costs are relatively cheap, mainly being determined by the cost of the manual. The big costs are advertising and attending shows, and, within limits, you can tailor these to suit your needs and ambitions."

These words earned me a rebuke from one of the then hardware traders, who insisted that I should charge the full price for my work. All nice in theory, but who would buy a Just Words! program at over £100 a throw?

I have written about this at some length because I believe my experience echoes those of other traders. Money is not a motivating factor other than when losses become uncontrollable. After my 2003 loss, the largest in a single year, I set up rules about the maximum deficit I was prepared to bear and reshaped Just Words! to keep within it. The reason I finally closed the commercial side of Just Words! was not financial. When in two consecutive issues of QL Today the obvious lead story was a Just Words! item, I realised that trading was incompatible with the editorship of QL Today, and reshaped the business into a expanded freeware website.

Finance is less of a problem to traders than many people suppose. The level of trading activity is now so low that a form of equilibrium has been reached whereby traders can control their deficits. Within reason they are happy to continue as a service to the QL world with any earnings being ploughed back into the community through, for example, advertising. For about 10 years now traders have said that advertising has little or no effect on sales. Instead it is a sign that you are still alive and a way of showing your loyalty to QL publications. One trader used to refer to his former Quanta advertising as "charity", although I mischievously reminded him on more than one occasion that Quanta did not need charity. He was making a loss, but Quanta had over £12,000 tucked away in the bank.

The QL has a long tradition of people happy to serve the community for little or no reward. If our QL Today writers expected us to pay them for their work, we would probably have to double the price of the magazine. A software author of the calibre of Marcel Kilgus has earned nothing like the sums he could have done outside the QL community. Tony Firshman has not raised his basic QL repair charge in 15 years. Your Quanta subscription has remained the same for as long as I can remember. QL-ing remains cheap through the altruism of many people.

Some QL-ers still have difficulty in realising just how important altruism has been in the QL Community. A few years ago I attempted to start a discussion on the QL-users email group about the projects Quanta could finance. Suppose Quanta was to make £1,000 available for QL development each year, how would we spend it? No one came up with a concrete suggestion, but several people shot me down by saying it was

an utterly stupid proposal. £1,000 would not buy a week of a skilled programmer's time. There is an important lesson here for those of us who believe Quanta could have made more constructive use of its capital. Even given a greater willingness by Quanta to exploit its capital, suitable projects for financing would have been hard to find.

There is another way in which my trading experience echoes that of other UK traders. A large proportion of our work is in helping black box users. The software market is now burnt out and what trading there is is in repairs and second hand hardware. Rich Mellor's most popular line is keyboard membranes, a good opportunity to remind everyone that these were financed by a loan from Quanta. Put in another way QPC and Q40/60 users rarely use traders these days, but native hardware users do. Many of these are simple "black box" users.

Over the years UK traders have built up a knowledge of black box users, their problems and needs, that, I regret to say, Quanta does not have. They are probably the group of Quanta members most neglected by successive committees. The present officers missed their opportunity to reconnect with the black box users when John Southern and I did our membership and QL use surveys three or four years ago.

We should never denigrate black box users as being inferior QL users. Some of them are as colourful and individualistic as some of the well known notorious QL-ers. I have had contact with the former head of the prison medical service; with a man who has done much to keep a part of Britain's theatrical heritage alive; and with a man who introduced a household name franchise company to the UK. I have also seen some interesting data bases including an archive of arctic explorers and of vintage car photos.

Black box users are very relevant to the present reluctance of traders to attend shows.

When you go to a show as a trader you are giving a huge time commitment. You cannot pop in for a couple of hours to see how things are.

You are committed to the full 6 hours of a show. In addition you have to arrive an hour early to set your table up and allow an hour after the show to pack up. It is a long day often meaning leaving home while the punters are still tucked up warm in bed and arriving home late at night. In addition there is the work that has to be done in the days leading up to a show and when you get back home.

A further problem is that the people who attend shows are no longer representative of the QL community. Shows are no longer of interest to black box users. People who come to shows are largely QPC users with little need of traders. And then human nature kicks in. When people have no intention of buying something from you, they find it embarrassing to come up to your table just to pass the time of day. Attending a show as a trader can sometimes be a lonely experience.

As one trader put it in a private email:
"OK, it is nice to get together with a few friends and have a chat and a drink, but the standing around in a draughty hall talking to the one or two people who do attend, is demoralising."

One thing that was nice for traders in the past was meeting one another and perhaps having a meal together after the show. It was an opportunity to reminisce, swap ideas and plan projects. But as the number of traders able to attend shows has diminished this incentive has largely disappeared.

Realistically we are likely to see a further reduction in trading activity in the not too distant future. Please remember it is not just a question of finance. Traders are busy people with other demands on their time. Logically as trading diminishes Quanta will become increasing important for the survival of the UK scene. All the more important for Quanta to attempt to discover more about their members, especially the black box users, and thus be able to serve them better.

Byts of Wood
by Roy Wood

Welcome to volume 13 - from the back pages.

As you probably realise, Byts of Wood was always intended to be comprised of the flotsam, jetsam and general QL beachcomber debris that

washed up on my desk that I thought would be of interest to QL users. I have also, over the years, included the odd 'message in a bottle' from users, programmers and hardware develop-

ers - not to mention a hefty dollop of my own ideas and rantings along with a seasoning of downright silly humour. Over the years the sources of these items have gradually diminished and sad to say, my own use of the QL has also been less prominent in my life, so writing these columns becomes increasingly difficult.

This is not to say I don't still follow the User Group writings or use my QPC2 programs - it is more that a greater amount of the everyday things I do on a computers I do outside of the QL. This is a somewhat sad thing because the QL was the first 'real computer' I ever had and I still feel that its simplicity and accessibility should make it much more viable for simpler tasks than a PC is. However, since I have to fire up the PC to get to the QL it seems somehow easier to do the stuff on the PC.

This is probably a situation many people fall into. I can well recall Dr Jones coming to one of our Sussex QL Users Group meetings and ranting at Stuart Honeyball for the QXL which, he felt, led people to use a PC and thus abandon the QL. I suppose that really should have been the cue for the QL developers to get off their collective backsides and make the QL special again. This did not happen for some time and so we suffered a steady attrition of programmers and hardware developers.

Floppy House Blues

Talking of things dropping into disuse, the plight of the poor floppy drive comes to mind. Very often these days I find myself confronted by a computer with no floppy drive on it. For most people this is no problem and they have no use for a device which stores such a small amount of data. These days you can get an 8Gb USB stick for £20 or so, so what is the point of a floppy drive? This makes life hard for the QL using community because we do use them still and the disks are rapidly heading off into the sunset. Many places now no longer stock them and even many mail order places have limited stocks.

I was reminded of how slow the floppy drive on a PC is, when accessed from QPC2, when I came to make up the cover disks for the last issue I had to format all of them first and then copy the software. It took forever. Now there is a project that someone could get into. There must be a faster way to transfer data to a floppy. It is certainly faster on a QL (because I did some of them that way, but then I sold someone my last set of twin disk drives so I was forced to go over to my laptop.

It is one of those things that makes you feel old when you realise a whole method of data storage has been developed, manufactured, superceded and become obsolete in your lifetime. Try buying video tapes now or minidisks. Technology has moved on and, in many cases, become more ephemeral and fragile.

Colours

I was intrigued to read the bit, on the QL Users list, about getting more colours from a standard QL. This was a goal of Stuart Honeyball's (two mentions in one column - wow!) way back in the days when he was trying to produce a graphics card for the standard QL to rival the Aurora.

If you want to read the details of how it is done on a QL go to

http://omega.webnode.com/products/sinclair-ql-dithvide-2/

There is a wealth of stuff there to look at, although some of his pictures may take some of our more staid QL users aback. There is also some source code and some downloadable programs. Well worth a look

Since it is running on a standard QL I wonder what storage is needed to keep the screen data. The big drawback with running the SMSQ/E colour drivers on a Super Gold Card QL is the amount of data the system has to store to run the higher colour screens. This leaves scant space to run programs. All of which leads you, inexorably back to the thorny issue of QL hardware. A successor to the Super Gold Card would be needed but how many people would buy it and how much would it cost? Still if someone can come up with such an innovative way to get higher colours on a standard QL-output maybe they can replace the QL memory with something else or even come up with a Super Gold Card expansion kit? Feeling stimulated yet?

My Old Chum, Roger.

All of the above should be grist to the mill of Roger Godley. He has spent the last few years producing odd hybrid hardware and sticking his scalpel into the innards of some of the QL most staid programs to produce new, improved versions. He sent me a long letter about various things when he renewed his subscription.

One thing he seems very keen on - as was my other old friend, the late Steve Hall, is having the maximum amount of data displayed on the screen at any time. This is all very well but I do feel that sometimes the amount of data displayed

can be overwhelming and I do like the idea of selectable tool bars but I realise this is not to everyone's taste. I did comment on his graphics program that I felt it should have more pointer options. He replied to me saying that it was more accurate to use the arrow keys. That is true in some instances but then, in others it is not. I was not really suggesting drawing with a mouse - something which is very difficult to do accurately - but I was suggesting the use of a mouse to position items and to draw such things as circles and rectangles. He also seemed to think that I was inferring that the new program was a hack of an earlier commercial one. I did mention that he had done this in the past but I was not suggesting this was one of them. He assures me this is all his own work and that he has 20,000 lines of source code to prove it. I never doubted this was the case and apologise if he thought I was suggesting it.

He also wrote to me about the problems he has been having getting his ideas across to Quanta for their library. I am not going to get into a Quanta bashing exercise here because that is really rather counter productive but I think he was saying that he wanted Quanta to offer his improved versions of the PSION suite to users outside Quanta and suggested relaxing the rules on its library. I am not sure how many active users are not in Quanta but opening out the library programs to a wider public could be useful. It would run into problems with some of the people who donated the programs with more specific restrictions however and so would need further consideration.

Libraries
When Roger referred to the library issue I had a sudden flashback to my first encounter with these vaults of esoteric programming. When I first started using a QL for more than just firing up the Psion suite I became aware that there were three libraries of free software. Qubbesoft, run by the unique Ron Dunnett, SJPD run by Steve Johnson and the Quanta one. What amazed me back then was that there was so much stuff available. I still have piles of disks with this software on it at home. Some of the things I found on these disks were of incredible use and I got some great utilities and odd little programs from them. Many of them, however, left me baffled. Not matter how often I read the notes provided by the author I could not understand what it was I was expected to do to get it to work. The late Steve Hall and I poured over these strange bits of code for many

hours. Steve, being the more diligent of the two of us, got a lot more out of it than I did and would often call me, late at night, with a blinding insight he had made into what you had to do to get stuff working. Back in those days there was no internet to provide us with instant communications and we often linked out computers via the modem and Jonathan Hudson's QTPI programme and transferred files that way.

It was obvious, at the time, that the people who were best at creating the code were the worst at writing the manuals. Jonathan Hudson's QFAX program was a case in point. Reams and reams of text explain the origins of FAX communication and the protocols used when a few pages of 'do this..now do that' would have left the users a lot less baffled.

SJPD and Qubbesoft have long since sunk into the dust and only the Quanta library remains. Maybe Roger has a point and we should collate the material, classify it into stuff which will run only on the older system, stuff which requires the Pointer Environment etc. and get the software available more freely.

Some Good News.
Another person with whom I have been having a sporadic communication is Al Boehm. I have know Al since I started with the QL and met him at the very first QL US I attended. We have never seen eye to eye about a whole swathe of things, but we were still friends and I was saddened when I learned that he had suffered a stroke and had some paralysis as a result. He played guitar and wrote music and as a guitar player myself I can appreciate how difficult it must have been for him to lose some of that co-ordination. Nevertheless, he is an indomitable man and would not let it beat him. His first messages, after the stroke, were very hard to read but recently we have been having a lively communication -some might say argument - about Global Warming and religion. I am pleased to say he has regained much of his old fire and clarity and so must be well on the way to recovery. Good news indeed.

Games
One thing he mentioned was wanting to play some of the older QL games again but finding it hard on an emulator. This is something I have also thought about a bit. I used to enjoy a few games on my older QL which I now have no access to because they do not run as well on QPC2, which is my main QL access point. I do still have a couple of QLs and a working monitor but

I have only set them up to test hardware and actually sold my last working set of floppy disk drives and Super Gold Card a while ago.

One way that I got around the problem of games not running in High resolution was to have a separate QPC2 set up which boots in the old four colour scheme and in 512 x 256 so I can play QShang and other things like that. This works OK for many games although some are now too fast to run and I have never worked out how much of a SLUG-command to use. (I remember a QL-show 'up North' where Steve Hall was trying to play a game on a Super Gold Card machine and was running really fast. A young girl looking over his shoulder kept saying 'slug it', in a strong Manchester accent). What would be nice would be for someone to write a 'Retro QL Window' program that you could pop up under QPC2 to run some of these older pieces of software without having to reboot in native mode.

Al also mentioned trying to get a joystick working under an emulation. I tried plugging a PC joystick and then tried to get it to work in QPC2 but I could not get it to function. Anyone have any idea how to get this working?

Smashed Windows

After many years holding on to its flagship operating system Microsoft seems to be finally signalling that it is preparing to ditch Windows. Recent press releases coming from the mighty M$ HQ seem to indicate that the company favours a stripped down O/S for that which is to follow the one after Vista. First, of course, they have to undo the damage they wreaked with Vista itself. The next offering, codenamed Windows 7 (imaginative, they ain't) is getting ready to limber up. Vista is universally seen as a failed O/S. The Microsoft figures which show how many are sold don't really take into account the fact that many purchasers of new systems don't use the Vista installation provided but 'downgrade to XP'. Of course some of this is partly the old 'I'll stick to what I know' concept and the introduction of new methods of doing things always confuses people at first but Vista does seem to need an inordinate amount of raw computing power to achieve the same ends as its predecessor.

A recent study, done admittedly by Microsoft itself, allowed some alpha testers an opportunity to try a new operating system. They were allowed into a room where they played with a set of machines running the new system and then asked to report back. The response was overwhelmingly positive with many of the users saying it was a great improvement on Vista. Once they had reported their views they were told that the O/S they were using was, in fact, Vista.

Microsoft, naturally, saw this as a vindication of their O/S over the prejudices of a fickle, and easily swayed, public. The real insight here is, however, that they were impressed because it was a system set up by Microsoft technicians, tuned to its optimum performance with the right amount of RAM, the right hardware and everything set up to run best. How many people ever get a system like that? Most people have a hodgepodge of bits and pieces. Stuff from Dell, Acer, Hewlett Packard or Woolworths with a standard installation of Windows shoved onto it automatically - a set of drivers at least 6 months out of date and probably a motherboard Bios to match. Even those of us willing to get the screwdriver and lump hammer out and make our own system don't have that magic door to all the explanation of all the issues which cause crashes, hang-ups and general mayhem in the guts of our computers. Of course these machines worked well!

The latest concept is that the basic O/S will be much smaller and leaner and that the user will download all the programs he needs when he needs them. OK I suppose if you are sitting on the end of a massive fibre optic connection but useless if you are sitting in a WiFi free zone trying to finish a bit of work. Of course they have tried to foist this one on us all before to no avail. maybe they will now achieve it by just taking all the toys away. How many people actually use all those odd little utility programs hidden away in the O/S or even all the facilities that are available? The same is true of the Office products.

All of this leads us back towards a place where we started off although there are many more sacrifices of speed and efficiency at the altar of 'looking good'. They are not, after all going to present us with a four colour system at 512 x 256 resolution........maybe someone should suggest that to Bill's successor.

One final thought. I saw no mention in the press, or indeed anywhere, of the fact that Bill Gates and Alan Sugar both left their positions in the same month. Could they be planning something secretly? Oh no, Windows made by Amstrad! Just when you thought it could not get any worse.

The QL Show Agenda

QL Meetings in Eindhoven (NL)

Saturday, 18th of October 2008, 11:00 to 16:00
Pleincollege St. Joris, Roostenlaan 296

Thanks to the organiser, Sjef van de Molengraaf, the meetings at Eindhoven also continue in 2008. Same venue as always. J-M-S plans to be there, as always.

Please note that the 2008 shows start at 11:00 instead of 10!

QUANTA Announcement

25th Anniversary Workshop and AGM
Saturday April 18th and Sunday April 19th 2009

The QUANTA Committee invite all members to come to the 25th Annual General Meeting and Celebratory Workshop at the ALLESLEY HOTEL, Coventry, England. CV5 9GP.
[Editor: Quanta shows are traditionally open to non-members as well as members!]

The programme will include:
Talks / Interactive problem solving / Repair Desk / Traders / Other activities
There will also be a celebratory dinner on the Saturday evening.
Anyone wishing to book:
An early place / Give a talk or demonstration / Set up an activity
Please contact Quanta secretary Sarah Gilpin at **secretary@quanta.org.uk** Further information will be published in the next issue with full directions etc.

For directions to the hotel, visit: **http://www.allesleyhotelcoventry.co.uk/Allesley_Coventry_Hotel_Directions.html**
or visit the hotel's website at: **http://www.allesleyhotelcoventry.co.uk**
The hotel is easily accessible from Birmingham International Airport, so we hope our Overseas Members will be able to come and join us. A number of rooms have been pre-booked for the Friday and Saturday nights. If more arerequired, then your early intention to attend will help.

The Next Issue

We plan to have the next issue ready for you towards the middle of December.
As always, it depends on how quickly we get reviews, articles etc.
The more material we get and the sooner we get it, the quicker the next issue will be in your hands, and the better it will be. Hope to meet you at one of the forthcoming QL shows - your QL Today Team!